618-905

Ar2
10

DOMINA RERUM SAPIENTIA

Library
of the
Academy of Medicine,
Toronto.
7+12

CARSWELL Co., Limited
Bookbinders,
Printers, TORONTO

THE

Archives of Pediatrics

A MONTHLY JOURNAL DEVOTED TO THE

Diseases of Infants and Children.

FOUNDED IN 1884 BY WM. PERRY WATSON, M.D.

EDITED BY

FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician,
Hospital for Scarlet Fever and Diphtheria; Consulting Physician,
Children's and Infants' Hospitals.

VOLUME XV.

JANUARY TO DECEMBER.

1898.

LIBRARY
JUL 16 2002
UNIVERSITY OF TORONTO

NEW YORK:
E. B. TREAT & CO., PUBLISHERS.
1898.

741.2

Copyright, 1898, by William Perry Watson.

A. G. Sherwood & Co., Printers,
47 Lafayette Place,
New York.

ARCHIVES OF PEDIATRICS.

VOL. XV.] JANUARY, 1898. [No. 1.

Original Communications.

RETRO-ŒSOPHAGEAL ABSCESS.*

BY J. P. CROZER GRIFFITH, M.D.,
Clinical Professor of Diseases of Children in the University of Pennsylvania,
Philadelphia.

William B., aged twenty-one months old, was brought to the Children's Clinic of the University of Pennsylvania, November 8, 1895, with the following history: He had been healthy previously, except for some degree of indigestion. He was fed on different commercial infants' foods at first, and finally on cow's milk, which agreed with him best of all. He cut his first teeth at six months, and walked at thirteen months. In the winter of 1894-5 he had a mild attack of pneumonia, but recovered completely. About four months before his first visit to the hospital he began to have a troublesome cough, for which he received treatment without any benefit; even being kept in one room for three weeks. For the last four weeks the cough had had a very metallic, croup-like character, and there had been rather noisy breathing at times, this being brought on by the least exertion. The child had frequent cough during the nights, with croup-like attacks and difficult respiration, which had been the cause of alarm, and had necessitated sending for a physician in haste on several occasions.

The examination made at his first visit to the hospital resulted as follows: The child was rather pale, but fairly well nourished; respiration decidedly labored, but not much accelerated; expiration longer than inspiration. Cough was of a very striking character, exactly like that of stenosis of the trachea from tumor. The head was slightly rhachitic in shape, and the fontanelle still open. The chest, however, was not noticeably rhachitic, but the transverse furrow below the nipples was very marked on inspiration, and the sterno-cleido-mastoids and the alæ nasi played with each breath. The lower part of the chest was sunken in very decidedly, as though by pulling of the diaphragm. With each inspiration there was a noisy rattling sound of mucus in the bronchial tubes. Examination of the chest showed no percussion dulness anywhere; no unusual shape other than stated: no alteration of respiratory murmur except some prolongation of expiration, and numerous coarse mucous râles everywhere. Examination of the throat made by Dr. Charles P. Grayson, Lecturer in Laryngology in the University of Pennsylvania, showed nothing abnormal in the pharynx as far down as the epiglottis. The vocal cords could not be seen readily.

---

* Read before the American Pediatric Society, Washington, D.C., May 5, 1897.

The day following the examination the child was no better, and by November 12th he was rather worse, with the cough very frequent and still more suggestive of stenosis. I advised therefore that he be taken to the Children's Hospital, as it seemed dangerous for him to be without medical observation at night.

The diagnosis of the case so far was obscure. The child had been shown to the students in the ward classes, and the possible nature of the affection discussed, yet without arriving at any certain conclusion. Bronchitis of a suffocative grade from profuse secretion, croup, stenosis from mediastinal tumor, or from tuberculous glands, etc., were all passed in review. The very large number of coarse mucous râles made the first probable, especially if with this condition there was associated a spasm of the larynx occurring at times. Against the existence of spasm was the fact that the difficulty in breathing was nearly constant, and had not been relieved by any treatment which would naturally produce relaxation.

It seemed a possible thing that the increased dyspnœa at night might be due to a combination of asthma with bronchitis, although the short duration of the condition made the existence of asthma unlikely. More plausible seemed the diagnosis of a stenosis of the trachea or bronchi. The very characteristic cough of stenosis, the absence of hoarseness, and the presence of such constant and well-marked dyspnœa made stenosis seem very probable, although careful examination of the thorax showed no evidence of a tumor. The existence of enlarged tubercular bronchial glands was entertained, but seemed, on the whole, unlikely.

The child was at once, November 12th, entered at the

Children's Hospital, and on the 13th, I received an invitation to attend a tracheotomy upon him, which Dr. John Ashhurst, Jr., the attending surgeon on duty, was to perform that morning. The history of the case in the interim had been as follows: When brought to the hospital, the resident physician had obtained from the mother an account of the swallowing of a foreign body by the child. It seemed to me at the time very possible that the mother's statement might have been the result of suggestive questions, for nothing of the sort had been told us before. However this may be, the mother now seemed most positive that some four weeks previously the child had choked over a piece of celery, and had grown blue in the face, that she had made an ineffectual effort to get this out of its mouth, and that at this time the difficult breathing and the strident cough had commenced; although she admitted that considerable cough had been present before. As the patient's condition was rapidly growing worse, operation seemed the only justifiable course. Tracheotomy was performed on November 13th. The child ceased to breathe before the trachea was opened, and was revived only with the greatest difficulty. The opening of the trachea gave no relief to the dyspnœa, and, before the operation was quite completed, respiration again ceased and was re-established only with the greatest effort. Cyanosis and dyspnœa persisted. No foreign body could be detected by the forceps passed downwards through the wound. The child was placed in a croup tent and the air kept moist. The symptoms failed to improve; by evening the temperature arose to 103. On November 14th the condition was no better and fever continued. A stringy shred was brought up through the tracheal tube, and this was supposed to be possibly a piece of celery, but it was unfortunately not preserved for examination. The chest showed signs of broncho-pneumonia. By November 17th, the dyspnœa had grown constantly worse, the child weaker, the temperature had ranged about 104, and respiration between 50 and 60. Death took place on this date.

A *post-mortem* examination was made under restrictions imposed by the family, which interfered with the obtaining of certain details. The result was a surprise to every one. The heart was normal. The lungs exhibited a diffuse broncho-pneumonia. In the right bronchus, one-half inch below the bifurcation of the trachea, were found three small bodies about one-third of an inch in diameter. These were adherent to each other by mucus, were yellowish in color and soft, and almost occluded the lumen of the tube. They were at first supposed to be the foreign bodies looked for, but microscopical examination showed them to consist only of fatty crystals and granular detritus. While attempting to dissect out the right bronchus, the knife, passing posteriorly, punctured an abscess cavity and several ounces of pus escaped. On enlarging the puncture the pus was seen to come from an abscess situated behind the trachea and bronchi. The abscess reached upwards over the first thoracic vertebra, and downwards to about two inches below the bifurcation of the trachea. Its posterior wall was formed by the vertebræ, and the interior surface of the body of the first thoracic vertebra was eroded sufficiently to allow the tip of the little finger to enter the hole formed. The anterior aspect of the body of the second thoracic vertebra was roughened by the carious process. The dissection and the collapse of the abscess interfered with the exact determination of the degree of pressure which had been exercised during life. It seemed that the trachea had lain immediately in front of the sac and somewhat to the right, the left bronchus in front of it and the right bronchus to the right. The œsophagus lay to the left of the abscess and was closely adherent to its wall. Examination of the child's back showed no abnormal curvature externally to correspond with the seat of caries.

In response to questioning after the autopsy the parents stated that for about two months previous to the onset of the cough and dyspnœa, the child had held his back rather stiffly and had walked rather awkwardly, supporting himself with his hands. They had not, however, deemed it a matter of any importance—evidently it was not a striking symptom. Indeed, like the statement regarding the choking over the celery, the element of suggestion may have had much to do with the answers given. The *post-mortem* examination, of course, made the diagnosis plain, and fully accounted for all the symptoms. In retrospect it is easy to say that the existence of caries of the upper spine should have been thought of. The presence of stiffness of the neck or of an awkwardness of carriage or of deformity of the spine would have been suggestive had they existed; but without either symptoms or history there seem to have been no data on which a diagnosis could have been based. If dysphagia had been present as well as dyspnœa, the presence of a foreign body could have been excluded with reasonable certainty, and the existence of a tumor or other mass pressing on both trachea and œsophagus would have been almost sure.

There seems to be no apparent reason why retro-œsophageal abscess, causing stenosis of the trachea and œsophagus, should not be of comparatively frequent occurrence. As a matter of fact it seems to be rare. Text-books of surgery and of medicine for the most part make little or no reference to the possibility of its presence. I have looked through a considerable number of volumes with but little positive result. The works of Gross, Ashhurst, Erichson, Bryant, Pitha-Billroth, D'Arcy Power, Holmes, Dennis, and Hamilton, and the American Text-book of Surgery make no reference to it. It is also omitted in the volumes of Walsh, Fox, Rotch, J. L. Smith, Ingals, Osler, Tyson, Eustace Smith, the Cyclopædia of the Diseases of Children, the American Text-book of Diseases of Children, and the American Text-Book of Medicine. Riegel, in Ziemssen's Handbook, merely states that there are cases known in which caries of the cervical spine has produced stenosis of the trachea. I have looked through all the volumes of the Centralblatt für Klinische Chirurgie without finding a reference to a single case. Grossman, in a monograph on tracheal stenosis (Wiener Klinik. 1890, H. 3 u. 4) refers in a very brief note to the possibility of the condition arising, and Koenig (Lehrb. der spec. Chirurg. 4, Aufl. I. 529) speaks of the possibility in rare cases. All this is rather unsatisfactory, and would leave the impression that the possibility of the production of tracheal stenosis in this way is theoretical rather than real.

On the other hand, carious abscess producing tracheal stenosis is referred to by a number of text-books, although it is not always clearly defined whether it is exceptional or not. Gerhardt and Henoch, in their respective text-books on diseases of children, touch most briefly upon the subject; Ashby and Wright give it only a short notice; Agnew describes it briefly, but succinctly; Holt and Baginski each devote to it quite considerable attention, the latter intimating that it is not as rare as is supposed; Barthez and Sannè describe it as one of the forms of retro-pharyngeal abscess, and give some of the diagnostic symptoms.

One is therefore left somewhat uncertain regarding the actual frequency of the condition. I have made no attempt at an exhaustive search of medical literature, but the following comprise all the cases I have discovered published during the last fifteen years:

Chapin, (New York Med. Rec., 1883, ii. 584; New York Medical Journal, 1884, xxxix., 294). Girl of about three years of age. There had been slight difficulty in breathing for some months, cough, but never dysphagia or affection of the voice. The temperature was always normal. A sudden suffocative attack terminated life. After death a large retro-œsophageal abscess was found in front of the deeply carious first and second dorsal vertebræ.

Walsham, (Medical Times and Gazette, 1883, i. 411.) Man of fifty-seven years. In this case there was great dysphagia, some swelling of the neck, no signs of caries. But it is to be noted that although primarily retro-œsophageal the abscess had extended upwards, and at the time of incision was retropharyngeal, with the characteristic symptoms of this disease.

Ripley, (Archives of Pedriatics, 1884, i. 104). A three-year-old boy had noisy, difficult inspiration, no dysphagia, slight hoarseness, dry wheezing cough, swelling about the neck and some prominence of the upper thoracic spinous processes. Death occurred a couple of days after tracheotomy. The autopsy revealed a large abscess in front of the fourth to the seventh cervical and first dorsal vertebræ, which were more or less carious. The writer states that Gibney has seen two cases of post-œsophageal abscess from caries, and James Knight not more than half a dozen in their very wide experience of spinal caries.

Clutton, (St. Thomas' Hospital Reports, 1885, xv. 244. Also Transactions Pathological Society, London, 1887, xxxviii. 134). Describes a specimen from a man of twenty-four years, in whom there had occurred sudden pain and swelling in the neck with inability to swallow, caused by rupture of an abscess into the œsophagus. Recovery followed, but the patient died in a relapse. The abscess appeared to have arisen in the areolar tissue of the neck, since the vertebræ were not involved. It extended five inches vertically, beginning three-eighths of an inch below the cricoid cartilage. It communicated with the œsophagus, trachea and the right lung.

Turner, (Lancet, 1887, i. 17). An infant with cough, attacks of dyspnœa with cyanosis, normal voice, no dysphagia. Death occurred after tracheotomy. The abscess, which extended from the level of the cricoid cartilage to within one-quarter inch of the bifurcation of the trachea, was unattended by caries of the vertebræ. It had caused slight flattening of the trachea.

Richards, (Lancet, 1887, ii. 659). Child of three years with curvature of the upper dorsal spine and with the head held stiffly. Cough brassy, and respiration stridulous and somewhat dyspnœic. No dysphagia or hoarseness. Death from pneumonia. The autopsy showed a retro-œsophageal abscess, larger than a horse chestnut, fully an inch below the larynx, compressing the trachea and œsophagus. The seventh cervical and upper three dorsal vertebræ were carious.

Jarisch, (Jahrb. f. Kinderheilk. 1875, viii. 188). Boy of four years, who had had some dyspnœa for several months, grew worse, and when seen was suffering with cyanosis, croupy cough and noisy, piping, stenotic breathing. The cry was normal, but when the child was not excited the voice was aphonic. There was a curvature in the region of the second dorsal vertebra, but no swelling of the neck. Death occurred in one of a series of suffocative attacks. The autopsy showed a large abscess reaching from the sixth cervical to the fifth dorsal vertebra, and pushing the trachea to the right and the œsophagus to the left. On the posterior wall could be felt the carious bodies of the second and third dorsal vertebræ.

Bremner, (Archives of Pediatrics, 1895, xii. 189). A child of eight months, who had suffered from slight cough and slight dyspnœa without dysphagia, and who died apparently of general bronchitis and exhaustion. A retro-œsophageal abscess was found extending from high up in the post-pharyngeal wall downwards four and a half inches as far as the fourth rib. The condition of the vertebræ is not mentioned.

Noble Smith, (Spinal Caries, 1894, 69). A child of six years with urgent dyspnœa supposed to be croup. The autopsy showed a large abscess behind the œsophagus and trachea. The fourth dorsal vertebra was quite destroyed and those above it partially so.

Holt, (Diseases of Infancy and Childhood, 1896, 276). Girl of five years with curvature of the upper dorsal spine, had very little cough and no dysphagia, but attacks of severe inspiratory dyspnœa, in one of which she died after tracheotomy. The autopsy showed an abscess the size of an egg in front of the upper three carious dorsal vertebræ. The right pneumogastric nerve was compressed.

Ashby and Wright, (Diseases of Children, Second American Edition, 65), state that they have met with two cases, one due to caries, the other to tuberculous glands.

Baginski, (Lehrb. d. Kinderkr. 5 Aufl. 750) says he has seen five cases in recent years.

Agnew, (Princ. and Pract. of Surgery, ii. 1018), says he has seen cases.

There are doubtless other cases, but the smallness of the number I have collected certainly shows that the disease is rare, and warrants the publication of the case I have detailed.

It is not necessary to dwell at any length upon the symptoms. In fact there seem to be none which are absolutely characteristic, and the diagnosis of the disease is often difficult and many times impossible. If we analyze the details of the cases I have mentioned, so far as they are given by the writers, including my own case, we find dyspnœa present to some extent in nearly all, and in most of them constituting a prominent and very urgent symptom. This would seem to be the result of reflex irritation as much as, or more than of direct stenosis. Cough also was nearly always present, sometimes only slight, sometimes very brassy and suggesting laryngeal stenosis, or, as in my case, pressure lower down upon the respiratory tract. The voice was seldom affected in the cases I have collected, viz., in only two cases, and in these but slightly. This is in sharp distinction to the voice of retro-pharyngeal abscess, which is so often thick and nasal. So, too, there was a peculiar absence of dysphagia, in spite of the fact that the position of the abscesses must necessarily have produced pressure upon the œsophagus. This is doubtless due to the fact that the tube yields easily to this pressure and changes its position. In retro-pharyngeal abscess, on the other hand, dysphagia is a very prominent symptom. In only two of the cases of retro-œsophageal abscess I have collected was dysphagia present, and in one of these the abscess had really extended into the pharynx as well, while in the other the difficulty in swallowing did not develop until the abscess ruptured into the œsophagus, and then was but a temporary symptom. Swelling in the neck would be a valuable symptom, but I find it mentioned in only three cases. Curvature of the upper dorsal or lower cervical spine would render one suspicious of the presence of an abscess; but that, of course, is a symptom which may or may not occur, depending upon the degree of caries, if this exists. As to the presence of caries as a cause I find it mentioned in seven cases and proved by autopsy to have been absent in two, while in the case of Walsham, which recovered, there was no sign of it, and in Bremner's case nothing is said on the subject. Baginski states that in most of the five cases of which he speaks the cause was diphtheritic pharyngitis. We may infer that the cases of Gibney and of Knight, to which Ripley refers, were the result of caries. It is interesting to note that the disease seems to be pre-eminently one of infancy and early childhood. There are only two of those enumerated here which occurred in adults.

123 SOUTH EIGHTEENTH STREET.

DISCUSSION.

DR. HENRY D. CHAPIN.—The case I reported did not even have dyspnœa, so that symptom does not necessarily follow as a diagnostic point. I was very glad to hear this history, for I think these cases should all be put upon record; they are most obscure. A little girl about five years of age was brought to the clinic at Bellevue with a persistent nervous cough. A careful auscultation failed to show any physical signs that would account for it, and the throat and nose were likewise examined. She was brought to the clinic for two or three weeks and we tried all kinds of remedies without avail; there was the constant, irritative cough. The mother came one day and said the child had died suddenly. She was apparently in good health, sitting up in bed playing with her mother, when she was seized with a paroxysm of coughing and suddenly fell over dead. I got an autopsy and found a retro-œsophageal abscess low down. In that case there was no dyspnœa. Doubtless if the child had lived a little longer there might have been dyspnœa.

DR. HENRY KOPLIK.—I think that the condition here called retro-œsophageal abscess borders closely on those cases in the literature of retro-pharyngeal abscess that have burrowed downward. In this case the cervical vertebræ and upper thoracic vertebræ were affected. Before I came here I saw a case which impressed me very much, of retro-pharyngeal abscess beginning with probable caries of the cervical vertebræ. The boy had been sick only five days. He had the following symptoms: fulness of the neck, febrile movement, great dyspnœa, and dysphagia. He had a diffuse swelling on both sides of the neck, spreading from the lower jaw to the collar bone. He was brought to me by a physician in our dispensary. The physician had suspected retro-pharyngeal abscess, but had not been able to see anything. He had scarified the posterior pharyngeal wall. In looking in the fauces we could see nothing, but in putting the finger into the fauces and down opposite the cricoid cartilage we could feel a velvety sort of diffuse swelling. The boy was put in position opposite the window, his head retracted as much as possible, a bistoury was introduced deep down, as deep as I could get it in the median line and then the cut was made in a longitudinal direction. No pus was obtained. I then entered forceps in the original wound and opened the blades and a large amount of pus escaped. I thought I felt carious bone. This boy was relieved by the operation immediately, the swelling on the sides of the neck disappeared to a great extent, but not completely. The pus had apparently infiltrated the parts about the larynx and the upper tracheal region to within an inch above the sternum. The amount of pus evacuated at that sitting must have been fully four ounces. I mention this fact because scarification was employed by the physician. In these obscure cases we should first examine with our finger. Even when I made the examination I was not sure of what was there, but a deep incision in this region does no harm and nothing but a deep incision will do. Now, were the abscess low down, as in Dr. Griffith's case, I think the external incision recommended by the Germans and practiced by some surgeons, is preferable. Except in the hands of an expert, the internal incision when the abscess is low down is not advisable, for the reason that if you are not quick enough, some of the pus may get into the larynx and down the trachea. I have seen one young baby, below two years, brought into the clinic moribund, because the physician had neglected to turn the child forward and allow the pus to escape when the abscess was opened. Again, the introduction of the finger, I think, is also dangerous, because these children are in such a critical condition that the least manipulation turns the scale against them and sometimes we lose our patient in that way.

DR. T. M. ROTCH.—In regard to the after treatment of retropharyngeal abscess, in most of my cases we have made the incision from within rather than from without. There is no question but that the former does the best. I have seen the babies almost die when we were endeavoring to keep the wound open, and it is much more difficult to keep the wound aseptic than with the external operation. When the abscess is evacuated down in the pharynx, you have to get the finger in and press the pus out in many cases, to keep the child from suffocation. Dr. Koplik's remarks are very true. They are so apt to die from lack of vitality and we cannot treat them as we do older patients.

DR. SAMUEL S. ADAMS.—The difficulty in making a differential diagnosis in retro-œsophageal abscess is very great and it cannot always be made, while in the case of retro-pharyngeal abscess the diagnosis can be much more frequently made. In one case under my observation a child treated for necrosis of the cervical vertebræ was supposed to have had a retro-pharyngeal abscess. My attention was called to it in passing through the ward and I examined it very carefully. I could not find any enlargement; the posterior or pharyngeal wall appeared to be perfectly normal; still there were some symptoms of dyspnœa, although not marked. The difficulty at that time came in differentiating some intra-laryngeal from extra-laryngeal trouble. I suppose it might possibly be membranous croup. A culture was taken. That night I was called up by telephone; the child's condition had become alarming. I immediately instructed the resident to send for a gentleman to perform intubation, and he found he could not introduce the tube. He telephoned to me to ask if he might perform tracheotomy; before the message arrived he had tried to perform the operation but the child was dead before he put the knife in. In this case the necropsy showed a retro-œsophageal abscess which required the closest dissection to detect. There was no external swelling; the symptoms were very much like those of laryngeal stenosis from membranous deposits. In this case it was impossible to make a diagnosis. Retro-pharyngeal abscess, which we had every reason to suspect from the necrotic condition was excluded. The abscess in this case was low down and considerably below the epiglottis, down almost to the upper portion of the trachea.

DR. J. P. CROZER GRIFFITH.—I only wish to add that I separated retro-œsophageal from retro-pharyngeal abscess, both because the symptoms are entirely different, and because the disease arises behind the œsophagus and not behind the pharynx. Of course I know of the possibility of the retro-pharyngeal abscess burrowing downward, but then you still will have the symptoms of retro-pharyngeal abscess. In this disease you have dysphagia and affection of voice as marked symptoms. In retro-œsophageal abscess they are absent or inconsiderable. With regard to the seat of caries, when this is the cause, I found that in the cases reported it was always in the upper dorsal and possibly last cervical vertebræ; never higher, as in retro-pharyngeal abscess. I naturally felt some chagrin. I discovered how far wrong was the original diagnosis of my case, but since I have looked into the matter I do not see how a correct diagnosis could well have been made.

CONGENITAL STENOSIS OF THE LARYNX. *

BY J. O'DWYER, M.D.,

New York.

Congenital defects or malformations of the larynx, according to the authorities, are of extremely rare occurrence. In concluding a short article on this subject, Mackenzie states that "as a rule deformities of the larynx do not come within the province of treatment." It is quite possible that instead of being so rare these cases are simply not discovered because any considerable malformation of the larynx is incompatible with the continuance of life. It means either a still birth or a brief struggle for breath after delivery, and the real cause of death under these circumstances is seldom known. While I have heard of two other cases of congenital dyspnœa, the following is the only one that has come under my own observation:

Last July, Dr. E. Hochheimer asked me to see an infant five weeks old, in consultation, that had suffered from severe dyspnœa since birth, and to come prepared to intubate. With the exception of the dyspnœa, which at times was aggravated almost to suffocation, the infant was, to all appearances, healthy. A neoplasm was suspected as being the more probable cause of the obstruction to respiration, but the voice was good, showing that whatever its nature, the rima-glottidis was not involved. On inserting the finger a globular mass was encountered in the situation of the larynx, in which no opening could be appreciated by the sense of touch. On further exploration I was satisfied that whatever opening existed was immediately behind the epiglottis, and that the malformation consisted of a union of the aryepiglottic folds throughout completely obliterating the vestibule of the larynx. Intubation was not attempted because even if a tube could be inserted, which is doubtful, the head would either ride above the adherent folds, or if forced through the stricture would be covered by them. I therefore began the dilatation with small urethral sounds until I could distinctly feel the opening when the finger was substituted and by making counter pressure on the outside, the adhesions were easily broken up until the larynx would admit the tip of the finger as in the

---

* Read before the American Pediatric Society, Washington, D. C., May 4, 1897.

normal condition. The dyspnœa was completely relieved and a cure effected in four sittings. There has been no tendency to a reunion of the separated parts, as the child when last seen, about one week ago, was in perfect health. Of two other children in the family, the oldest is healthy, the second a deaf-mute.

Some may think that cases of this nature more properly belong to laryngology than to pediatry, but that is a great mistake. Laryngologists, unless they be at the same time intubationists, do not educate the sense of touch, at least as far as the larynx is concerned. The case just reported was taken to a laryngologist before I saw it, but he could express no opinion as to the nature or seat of the obstruction, because the mirror could not be used. It is only in rare cases that the mirror can be utilized in young children while they are conscious, and when anæsthetized the field of vision is too rapidly obscured by secretions to accomplish anything. I have witnessed several attempts to obtain a view of the larynx under the latter circumstances with an equal number of failures.

About the only advantage of a laryngoscopic view of the larnyx in children is to determine the condition or position of the vocal cords, because any abnormality above the rima sufficient to obstruct respiration can be discovered by an educated finger in a few seconds. Knowledge thus acquired can be utilized for purposes of treatment as well as for diagnosis as in the case related above. Foreign bodies situated in or above the chink of the glottis are easily located by the sense of touch and may sometimes be removed by the same aid. While giving practical instruction in intubation some years ago, I came across an infant cadaver having a large cyst on the posterior surface of the epiglottis which might well have been the cause of its death. It was easily broken with the finger. It is also quite within the range of possibility that neoplasms, for which laryngotomy is now the only resource, may be removed in the same manner.

967 LEXINGTON AVENUE.

TWO FACIAL ANGIOMATA SUCCESSFULLY TREATED BY ELECTROLYSIS.

BY CHARLES N. DOWD, M.D.

Surgeon to the New York Cancer Hospital; Assistant Surgeon to St. Mary's Hospital for Children.

Angiomata are among the most disfiguring of facial deformities. They are caused by an enlargement of blood vessels. If there is simply a dilation of the capillaries in the skin a red spot or capillary nævus results. If there is an actual growth of blood vessels a tumor may be formed which extends into the subcutaneous tissues and which is composed of tortuous blood vessels, together with the modified structures which are involved in the growth, such as sweat glands, hair follicles, fat and muscle fibres; according to the kind of vessels which predominate, they are called capillary, venous, or arterial angiomata. Where the vessels do not maintain their tubular form, the term cavernous angioma is used.

They are usually congenital, but sometimes do not appear until after birth. About three-fourths of them are situated upon the face or head. Usually they do not grow more than the part upon which they are situated, but they sometimes do grow so rapidly as to be most serious. In medical literature there are numerous reports of cases where a large part of the head or face or one of the extremities has been involved in one of these growths.

The first case here reported was a child who was two years old in September, 1894, when her treatment was begun. About the upper part of the nose there was an angioma of the size and appearance shown in Fig. 1; it was of a dark bluish color, elevated above the skin, lobulated, compressible; the skin which covered it was thin and atrophic.

The treatment used was electrolysis. At first two or three needles attached to the negative pole of a galvanic battery were inserted into the tumor and held there about a minute, the sponge which was attached to the position pole being held on the skin near-by. About three to five small cells were ordinarily

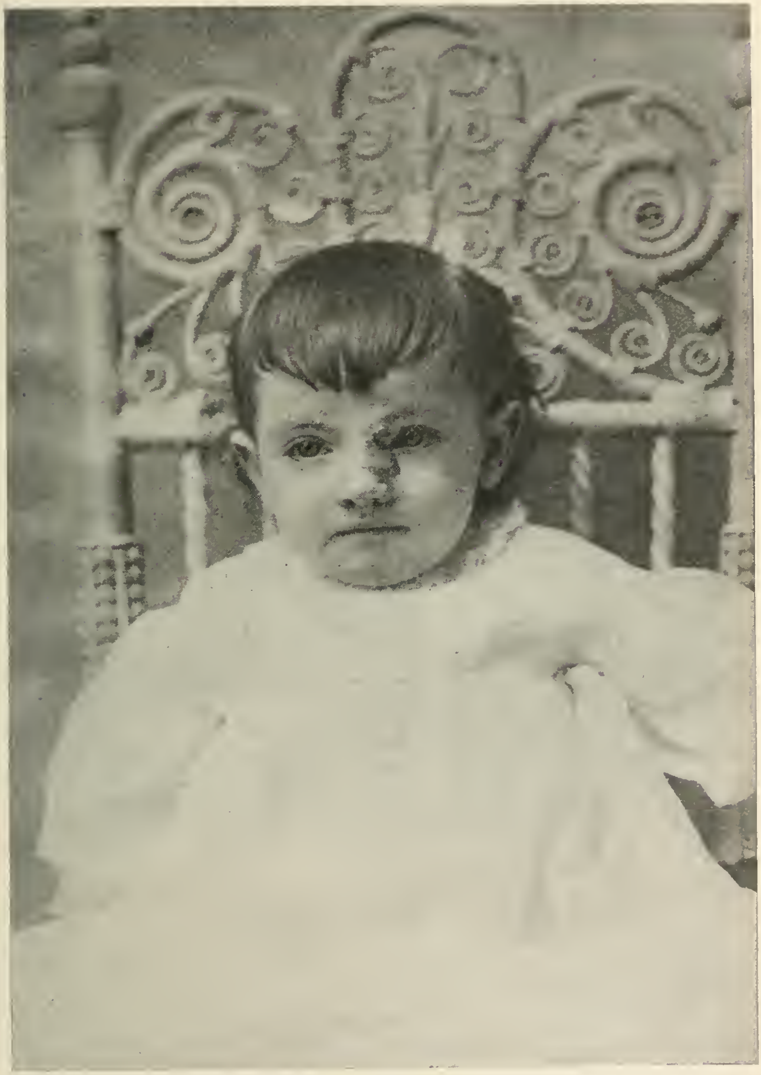


Fig. 1. Photograph of child before the beginning of the treatment.

used, enough to produce a little white bubbling about the needles. These applications were made about once a month for nine months, only a single needle, however, being used after the first two or three applications. Enough time was given between applications to permit the contraction of the tissues and the healing of the puncture spots. In this way each puncture could be so directed as to occlude the vessel or vessels which were most prominent. After five or six applications very little was done, as there was a tendency to shrinkage in the growth, and it was thought best to let this proceed of itself—only an occasional vessel being obliterated where it ran in from the margin.

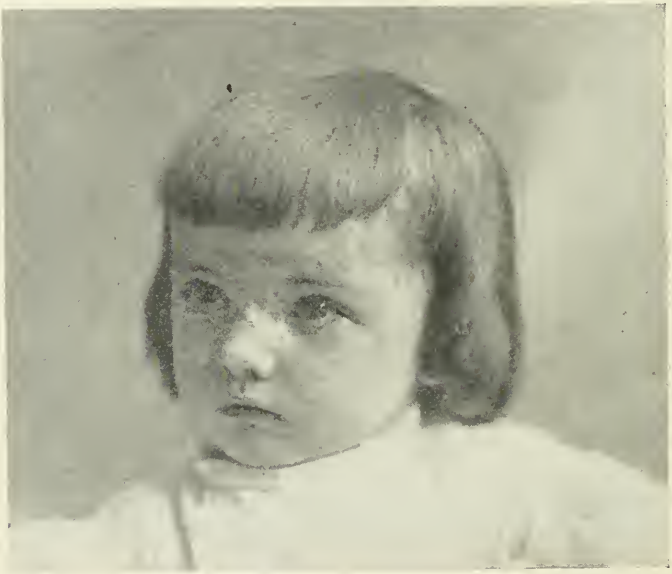


FIG. 2. Photograph taken one year later, after treatment by electrolysis.

At the end of a year the condition was that shown in Fig. 2. Hardly any dilated vessels were visible. The skin was light colored and its surface was slightly irregular. It had, of course, a cicatricial appearance. The mother was then directed to rub it daily to relieve the tension of the cicatricial contraction. She did this with only moderate regularity, but with good success; since at the end of another year, two years after the beginning of treatment, the condition was that shown in Fig. 2, excepting that there was a slight vertical cicatricial ridge, which shows faintly in some lights, but which does not appear in the photograph. She was seen in November, 1897, and her improvement has continued.

The second patient was four months old when first seen in April, 1892. Over the left malar bone there was a compressible, lobulated growth, which was elevated above the surrounding skin and which in color and appearance resembled closely a part of a large strawberry. It had existed at birth, but had grown rather rapidly of late.

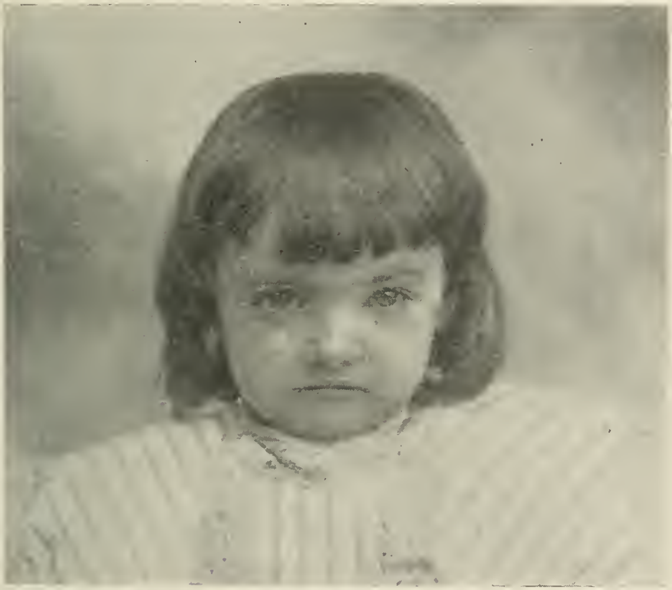


Fig. 3. Photograph taken one year later than Fig. 2, massage having been used in the meantime. There is a slight cicatricial ridge which does not show in the photograph, owing to the arrangement of the light.

Electrolysis was used as in the other case, enough time being left between the applications to permit of cicatricial contraction. On November 11, 1892, it was recorded that there was a depressed cicatrix with an angiomatous looking spot at its base. The tissue there seemed very soft. Electrolysis was used from time to time as was indicated.

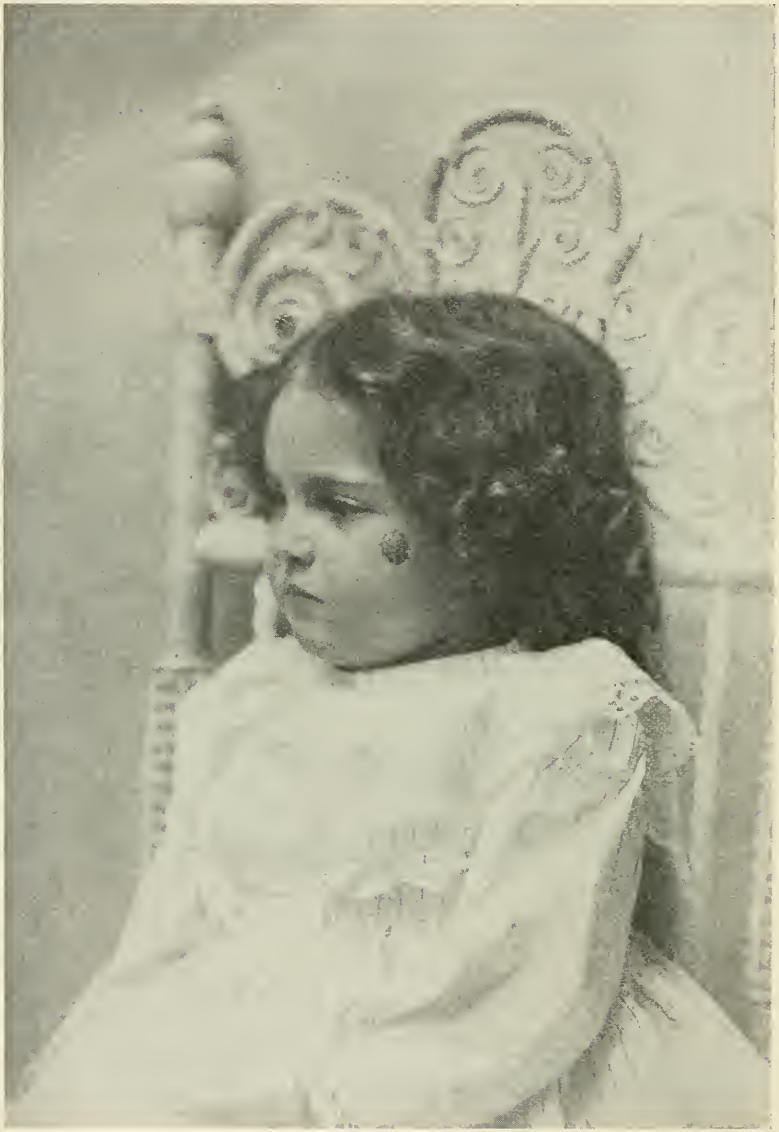


FIG. 4. Representation of growth before treatment, made by a water color drawing upon a photograph.

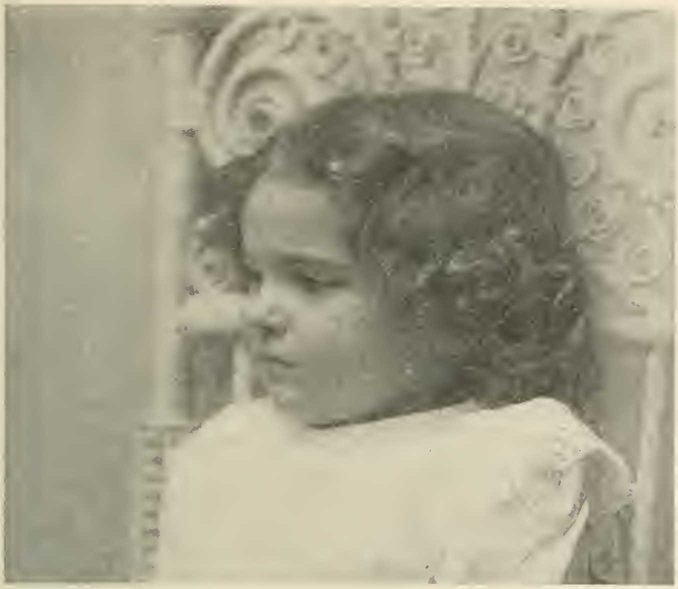


FIG. 5. Photograph showing the condition one-and-a-half years after the beginning of treatment by electrolysis.

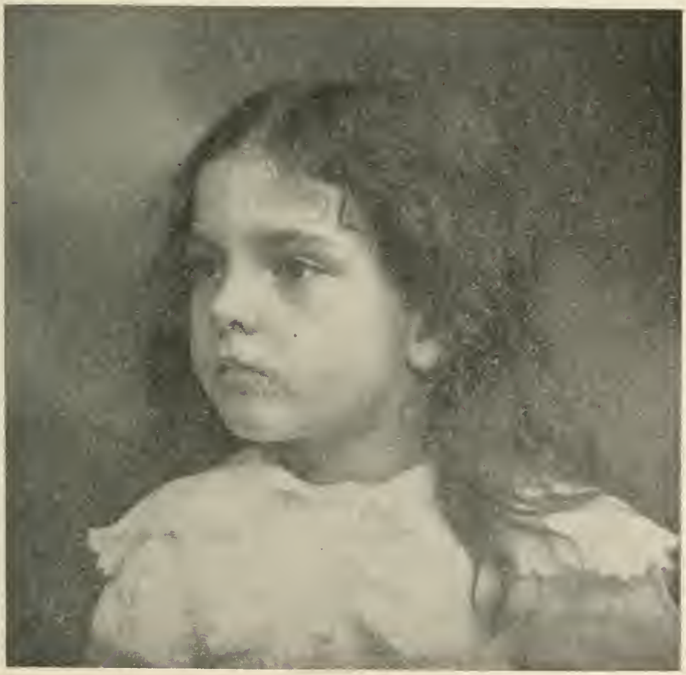


FIG. 6. Photograph taken four years after the termination of treatment.

In October, 1893, Photograph 5 was taken; the scar was less noticeable than a vaccination scar. No further treatment was used. In September, 1897, she was again seen and Photograph 6 was taken. The scar was then hardly to be seen.

Electrolysis seemed the best method of treatment for these cases, because it was desirable to preserve the skin over the growths, and this could be best done by this method, as a number of vessels could be obliterated through a single puncture of the skin.

This skin was atrophic and imperfect, but still was better than that which comes from skin grafting or through the process of healing over a granulating surface.

Excision of the growth is, of course, a much easier and more rapid method than electrolysis and should be used in those instances in which it is not important to save the skin over the angioma.

The use of caustics, coagulating injections, the actual or galvano-cautery, and ligatures applied in various ways have all been advocated and used, but these methods are all more likely to injure the surrounding tissues than electrolysis, and are not so delicate and exact in their application.

135 West Seventy-third Street.

On the Sterilization of Milk.—Marfan combats the idea that is so widespread among the laity that sterilized milk is safe. He has had an occasion to report (*Rev. Int. de Méd. et Chir.*, No. 18, 1896) an epidemic-like outbreak of severe gastroenteritis in young children. These children were all fed from milk that had been carefully sterilized and then delivered by the company. Upon investigation, it appeared that the milk was sterilized sixteen hours after milking. While the sterilization was abundantly able to kill the bacilli, they had had time in the meanwhile to multiply and develop toxic substances, which were the cause of the outbreak.—*American Medico-Surgical Bulletin.* [Heat kills bacteria but it does not destroy the poisons generated by them. If milk is sterilized after the poisons have been generated it is as dangerous as unsterilized milk.]

A SIMPLE METHOD OF CALCULATING THE PROPORTIONS OF CREAM AND WHOLE MILK REQUIRED TO MAKE ANY PERCENTAGE FORMULA FOR HOME MODIFICATION.*

BY THOMPSON S. WESTCOTT, M.D.,

Instructor in Diseases of Children, University of Pennsylvania; Visiting
Physician to Methodist Episcopal Hospital; Assistant Physician
to Children's Hospital, Philadelphia.

Since the introduction of modified milk as an important factor in the feeding of healthy infants and in the dietetic treatment of the digestive diseases of early life, many of us have come to rearrange our ideas of prescribing milk mixtures and to reach a stage where it is as natural to think in percentages as it once was to make empiric combinations of cream and milk in terms of fluid measure. The methods of calculating the quantities required in the laboratory combinations of cream, separated milk and sugar solution, are quite simple, and are managed by a few fundamental equations growing out of the old rule of three. In working in percentages, however, it is first a requisite to know that we can depend upon our constant factors; and it is here that the accuracy of modification by the laboratory is exemplified, since every care is taken to maintain a constant percentage of fat and proteids in the product of its dairy.

The advantages of a milk laboratory, however, are enjoyed by a comparatively small number of our profession, and these only in a few of the largest cities of the country; so that, for some years to come, home modification upon an approximately definite percentage basis will be the only available method open to a large number of physicians in America.

Recognizing this demand, Rotch, to whose efforts laboratory modification owes its inception, has suggested a method in which gravity cream (assumed to contain 10 per cent. of fat) is combined with the under-milk, which is assumed to contain no fat at all. Holt, in his recent text-book, has proposed mixtures obtained by diluting definite percentage creams.

Rotch's method leaves much to be desired, because it entirely disregards the fat in the under-milk, which, in the four per cent. milk used, after raising eight ounces of ten per cent. cream, would yield two per cent., a quantity well worth reckoning with. This can readily be shown by the following simple calculation:

---

* Read before the Philadelphia Pediatric Society, October 12, 1897.

32 oz. of 4 per cent. milk contain 1.28 oz. of butter-fat.
8 oz. of 10 " " cream " 0.80 " " " "

The difference between these quantities of fat, 0.48 ounces, is distributed in the remaining 24 ounces of under-milk, giving 0.02 ounces of fat to each ounce of milk—a percentage of 2.

When it is stated, and it can be readily demonstrated, that the percentage error in Rotch's mixtures, as regards the fat, can be represented in a 20 ounce mixture by one-tenth of the number of ounces of under-milk used, it will be seen that the variation from the required fat percentage in the higher proteid mixtures is quite considerable. For example, Table 77, on page 280 of Dr. Rotch's admirable treatise, for 20 ounces of a mixture to contain fat 4.00 and proteids 3.00, calls for 8 ounces of cream (10 per cent.) and 7½ ounces of under-milk. By means of the calculations about to be described it can be readily shown that such a combination would give 4.75 fat instead of 4.00. In the same way with the higher proteid formulæ embraced in Tables 78, 79, and 80, the excess is greater still, so that in the last of these formulæ the actual fat percentage derived from 8 ounces of cream and 12 ounces of under-milk would be 5.20 instead of 4.00, as is intended.

Holt's method is of limited application because dilutions of cream will only yield mixtures in which the fat and proteids bear the same ratio as holds in the undiluted cream from which they are derived. Thus finer variations in one or other of these two elements, which are easily managed in the laboratory, are rendered quite impossible unless they fall into the fat-proteid ratio of another strength of cream. The practical adaptability of this method does not extend to mixtures requiring a proteid percentage higher than 2.00, unless they can be derived from fractional dilutions of milk; and this only when the fat percentage equals the proteid percentage. The formulæ, however, cover many possible cases and can be made to fit very well for the lower proteid percentages.

A very general use of modified milk for more than a year and the demands for a home modification where it has seemed best for various reasons to make whole milk the basis of the mixture and supply the deficiency in fat by added cream, has led me to work out a simple method for effecting such a modification. This, I am satisfied, can give more accurate results than cream and under-milk combinations and at the same time prove applicable to nearly all cases where laboratory modification is possible.

The essential feature of this method lies in assuming a fixed average percentage of the proteids of mixed cream and milk. With this as a constant factor, it is then a simple matter of calculation to find the combined quantity of milk and cream required for a given proteid percentage in any total quantity of mixture. This being determined, it remains to apportion the quantities of cream and milk so that the sum of their contributed fat percentages shall equal the fat percentage desired in the mixture. This can readily be done in two or three trials with experimental values for the quantity of cream, the quantity of milk to be used being found by subtracting the quantity of cream from the calculated quantity of mixed cream and milk.

This method may be used with any strength of cream, but it has been found that a 12 per cent. cream is best suited to the purpose, except in some instances where very low proteids are desired, when a higher percentage cream may be necessary (16, 20, or 32 per cent.).

Cream containing approximately 12 per cent. of butter-fat can be obtained by skimming the top layer of average (4 per cent. fat) milk after standing in ice or iced water for about six hours. Or it can be made up by mixing two parts of 16 per cent. cream (12 hours' raising from the same quality of milk) with one part of whole milk.

A very important point to be borne in mind is that cream after all differs little from milk except in its higher percentage of butter-fat and somewhat lower percentage of proteids and sugar. The proteid value of cream is, on the average, within one-half of 1 per cent. of that of milk, varying from 3.60, for 16 per cent. cream, to 3.80, for 12 per cent. cream, to 3.90, for 8 per cent. cream, as compared with 4.00 in whole milk, or, as it might properly be termed, 4 per cent. cream. The sugar value also ranges from 4.20 for 16 per cent. cream to 4.50 for whole milk. It has consequently been found that quite accurate results are obtainable by taking as the constant proteid-factor the mean between the proteid percentages of the cream and the milk; 3.90 for 12 per cent. cream, 3.80 for 16 per cent. cream, and 3.60 for 32 per cent. cream.

Now as to the method, let it be required, for example, to work out the quantities of 12 per cent. cream and whole milk needed to make a mixture of 40 ounces, giving an analysis of 3.00 per cent. fat and 1.50 per cent. proteids.

It is first necessary to find the quantity of mixed cream and milk to give the proteid value required. This is obtained from the proportion

$$(1)\quad 3.90 : P :: Q : x,$$

in which P represents the proteid percentage required and Q the number of ounces in the total mixture. The unknown quantity x gives the quantity of cream plus milk to be used. Substituting the known values of P and Q one obtains

$$3.90 : 1.50 :: 40 \text{ oz.} : x,\text{–from which}$$

$$x = 15.4 \text{ oz.}$$

The problem now is to distribute this quantity into two parts, C and M, so that the combined fat percentages shall make 3.00. This is readily done by aid of the formulæ:

$$(2)\quad \frac{y}{12} \times Q = C,$$

$$(3)\quad \frac{z}{4} \times Q = M,$$

in which y and z represent the fat percentages from the cream and milk respectively; Q, the total quantity of mixture, as before; C, the quantity of cream; and M, the quantity of milk. The terms of the problem require that $M = x - C$.

In the example given, $Q = 40$. It is necessary to make one or two trials with an experimental value for C, working out the formulæ to see how closely the sum of y and z comes to 3.00. If we take $C = 7$, then $10y = 21$, and $y = 2.10$, whence from equation (3) we shall find $z = 0.84$, the combined sum of which is 2.94, which is only 0.06 short of the percentage desired. But if C is taken 7.3, then $y = 2.19$, and $z = 0.81$, the sum of which is exactly 3.00.

To take another example, keeping the same value of proteids for simplicity in calculation, let it be required to obtain 4 per cent. of fat.

Here, experimentally, if 10 ounces of cream are tried they contribute 3.00 per cent., while M $(= 15.4 - 10 = 5.4)$ would add only 0.54 per cent. Another trial, with $C = 12$, gives 3.60 per cent. from the cream and 0.34 per cent. from the milk, a result within 0.06 per cent. Another trial would show that 12.3 ounces of cream and, consequently, 3.1 ounces of milk, would give a resultant of 4.00 per cent.

It will be observed that the calculation of proteids is not strictly accurate, since the varying proportions of milk and cream bring together varying combinations of proteid values, but, at the most, these vary only between 3.80 and 4.00, so that an average of 3.90 very satisfactorily represents the average proteid value of these combinations of cream and milk. It is also evident that this assumed constant factor cannot be used for a proteid percentage higher than itself; but as such a combination would consist almost entirely of milk, the constant should be taken very close to 4.00—*i. e.*, 3.99 for proteid percentages over 3.90.

It is a very simple matter to calculate backward the percentage of proteids separately for the quantities of milk and cream used. The sum of these two percentages will be found to equal the proteid percentage desired, or to differ from it by only a few hundredths of one per cent. on one or the other side.*

A few exceptions to the universal application of these formulæ should be noticed. In proteid percentages less than 1.00, 16 or even 32 per cent. cream may be required for the higher fat values; in proteid values from 1.00 to 1.25, 16 per cent. cream is required for fat values from 3.25 to 4.00 for the lower, and from 3.75 to 4.00 for the higher of these proteid percentages;† also, in the higher proteids (2.25 to 4.00) skimmed milk instead of cream would be required for fat percentages lower than the proteid percentage. In practice, however, it is extremely rare to use a fat percentage lower than the proteid, so that this method will be found to give very satisfactory working results.

It must also be understood that this method assumes an unvarying analysis of the milk and cream used. That this can be expected in the product of an ordinary pasture-fed herd of cows is not only extremely doubtful, but is practically impossible. Granted, however, that daily variations in the product of ordinary dairies is to be expected, the method above described enables the physician to think out his diet prescriptions in percentages, and to produce mixtures which within slight degrees of daily variation represent definite percentages of fat and proteids.*

---

* In the last column of the illustrative tables given at the end of this paper, the proteid percentage has been calculated from the quantities of cream and milk used. The values range from 1.262 to 1.2185 for the 1.25 table, and from 1.5285 to 1.4785 for the 1.50 table. If the factor, 3.90, be corrected according to the proportions of milk and cream used, a more accurate computation can be made, but for all practical purposes the results obtained by using the average factor, 3.90, can be accepted as essentially correct.

† When 16 or 32 per cent. cream is necessary, the denominator 12 in formula (2) should be made 16 or 32 to correspond.

The regulation of the sugar percentage needs but a word. The calculation of the quantity to be added is considerably simplified by the fact that, since the sum of the quantities of cream and milk is constant for any one proteid percentage, the quantity of sugar to be added is also constant for this proteid percentage, and quite independent of the fat percentage. If the total quantity of milk and cream be multiplied by 4.40, and this product be subtracted from the product of the number of ounces in the total mixture by the desired sugar percentage, the remainder, when divided decimally by 100, represents the number of ounces of dry sugar of milk to be added to the mixture.

Lime water may be added to the mixture to secure a faintly alkaline reaction. Five per cent. of lime water is usually sufficient for this purpose. In gastro-intestinal disturbances it may be advantageous, for a time, to use 10 per cent. or even higher proportions of lime water to allay vomiting and exert a slight astringency upon the irritable intestine.

After having determined the quantities of cream, milk, sugar and lime water to be used, the sugar should be dissolved in a portion of boiled or distilled water, the milk and cream added, and the quantity made up to the total quantity desired with additional water. The formula to be given for a 3–6–1.50 mixture of 40 ounces would therefore be:

12 per cent. cream,	7 oz. 2 drachms.
Whole milk,	8 oz. 1 drachm.
Lime water,	2 oz.
Sugar of milk (dry),	1¾ oz.
Water,	22 oz. 5 drachms.

A distinct advantage of this method is that the proteid value of such a combination can be gradually increased by increasing the milk and decreasing the water by equal steps. The coincident increase of the fat percentage can be readily observed by the use of formulæ (2) and (3). When the fat value surpasses the percentage beyond which it is deemed inexpedient to go at the time, one-third of the increase of the milk may be deducted from the quantity of cream and the fat percentage will be reduced to its value before the increase of milk was begun. This plan permits a gradual increase in the proteids and fat without frequent changing of the formula, the rapidity of increase being left, in selected cases, to the judgment of the mother. In normal cases a half ounce of milk may be added, a teaspoonful more each day for four days of the week, this quantity to be held for the balance of the week. Then, if digestion be not disturbed, the same increase may be directed for the next succeeding weeks. This rate of increase would add 0.05 per cent. to the fat and proteid percentages every week, and is less likely to produce digestive disturbance than sudden and decided changes in the formula. In some cases so rapid an increase may not be borne well, and a slower rate must be adopted. In other cases, in which, in consequence of digestive disorder, it has been necessary to start with a mixture much weaker than a child of normal digestion would require at the same age, the increase in proteids may be made more rapidly than indicated above, after the disturbance of digestion has passed away.

---

* When closely accurate results are desired, analysis of the milk and cream to be used should be made for several days, and an average of these results taken for the fat values of the cream and milk, and a mean value of the proteid percentages for the constant factor. These figures should then be substituted in formulæ (2), (3), and (1), for 12, 4, and 3.90 respectively.

It is quite likely that the proteid percentage of ordinary dairy milk will not reach 4.00, and at times not even as high as 3.50. For ordinary cases, however, it will suffice to employ the figures given for the calculations, any deficiency in strength being readily remedied by increasing the proportion of milk, as above suggested, according to the tolerance and growth of the infant.

It is but just to add that the writer is indebted to the Walker-Gordon Laboratory Company for the percentage figures adopted in his calculations. They represent the standard analysis of the milk and creams produced by these dairies. By use of this method, with milk and cream from a laboratory, home-modifications can be made to give very nearly as accurate results as are secured in the laboratory modifications.

For purposes of comparison the following tables are given, showing the amounts of cream, whole milk and milk-sugar to be used for mixtures containing proteid percentages of 1.25 and 1.50.

QUANTITIES OF MILK, 12 PER CENT. CREAM, AND SUGAR OF MILK, REQUIRED FOR A MIXTURE OF 40 OUNCES.*

FAT	PROTEIDS	SUGAR	CREAM	MILK	MILK-SUGAR	PROTEIDS RECALCULATED
2.00	1.25	5.—6.—7.	3.6	9.2	1.4—1.8—2.2	1.262
2.25	"	"	4.8	8.0	" " "	1.2560
2.50	"	"	6.1	6.7	" " "	1.2495
2.75	"	"	7.3	5.5	" " "	1.2435
3.00	"	"	8.6	4.2	" " "	1.2370
3.25	"	"	9.8	3.0	" " "	1.2310
3.50	"	"	11.1	1.7	" " "	1.2245
3.75	"	"	12.3	0.5	" " "	1.2185
4.00	"	"	8.9(16%)	4.3	" " "	1.2310
2.00	1.50	5.—6.—7.	2.3	13.1	1.3—1.7—2.1	1.5285
2.25	"	"	3.5	11.9	" " "	1.5225
2.50	"	"	4.8	10.6	" " "	1.5160
2.75	"	"	6.0	9.4	" " "	1.5100
3.00	"	"	7.3	8.1	" " "	1.5035
3.25	"	"	8.5	6.9	" " "	1.4975
3.50	"	"	9.8	5.6	" " "	1.4910
3.75	"	"	11.0	4.4	" " "	1.4850
4.00	"	"	12.3	3.1	" " "	1.4785

While the calculations may be made for any total quantity of mixture, 40 ounces will be found to give the simplest results. The quantities of milk, cream and sugar for proportional parts of 40 ounces, may be found by taking the same proportion of the figures calculated for 40 ounces. For instance, for 20 ounces of a 3.00 fat, 1.25 proteid and 6.00 sugar mixture, 4.3 ounces of cream and 2.1 ounces of milk will be required, with 0.9 ounces of sugar of milk.

In actual practice this method can be readily used for prescribing at the bedside. The three necessary formulæ are easily remembered and can be quickly worked out, after their use is familiarized.

108 NORTH NINETEENTH STREET.

---

* The calculations are worked out in ounces and one decimal. In practice the nearest number of fluid drachms corresponding to the decimal is to be used.

A CASE OF CHOREA WITH ACUTE DELIRIUM, OCCURRING IN THE COURSE OF SCARLATINAL BRIGHT'S DISEASE.*

BY CHARLES W. BURR, M.D.
Philadelphia.

The points of most interest in the following case, are, first, the succession of events—scarlet fever, Bright's disease, chorea; second, the relation between the three.

The history, taken by the resident physician, Dr. Gilpin, is as follows: D. B., male, white, seventeen years old, a baker, was admitted to my wards at the Philadelphia Hospital on April 13, 1897. His family history is negative, save that one sister is an epileptic, his mother "is nervous and gets smothering spells," and his father died of phthisis. Little can be learned of his own previous medical history. He has never had a frank attack of acute articular rheumatic infection, but that he has never had any of the masked forms of rheumatism, not infrequent in children, cannot be proven. Six weeks before admission to the hospital he had scarlet fever, followed by dropsy. About one week before admission, a moderate œdema persisting, he began to have irregular jerking movements in the entire body.

Examination.—On admission there were somewhat severe, general choreic movements, not, however, very much interfering with walking and not preventing the use of knife and fork. The next day they were so severe that he had to be fastened in bed with a sheet. The skin was paste colored, the face puffy, the eyelids so swollen they could not be opened, and the legs and scrotum water-logged. There was some ascites. The first examination of the heart, made unsatisfactory by the violent movements, was negative. Later when the chorea had temporarily ceased there was a soft systolic-apical murmur, audible over the body of the heart, but not transmitted to the axilla. The area of cardiac dulness was normal and the apex beat was not displaced. There was no apical thrill. The knee jerks at first lessened, a month later were absent. There was no ankle clonus. The pupils were equal, normal in diameter and reacted to light and with accommodation. The urine at first was acid, had a specific gravity of 1040, deposited seven-eighths of its bulk of albumin on being heated with the addition of nitric acid, and contained many hyaline, granular, and fatty casts. The bulk of albumin and number of casts varied directly as the severity of the symptoms (Gilpin).

---

*Read before the Philadelphia Pediatric Society, October 12, 1897.

On admission the patient's mental condition was fair. He was a little dull and at the same time irritable, not liking to be examined or talked to, but able to tell his story and not showing any hint of what was soon to happen. The next night he became wildly delirious, shouting "murder," seeming to see horrible visions, throwing himself violently about, refusing all food and medicine. From then on there was incontinence of urine and fæces. A week later the mental symptoms passed away, the movements ceased almost entirely, the dropsy was much lessened. But the improvement was only temporary. Two weeks later all the symptoms returned with extreme severity and continued till death on June 15th. The chorea ceased two days before death and was followed by stupor. Throughout the course of the disease there was no fever (except one day when the temperature suddenly and without known cause rose to 101° F., falling to normal the following morning), until the day before death, when it rose to 100°, fell again, again rose to 103.2°, and finally a few hours before death fell to 101°. Bright's disease caused death. *Post-mortem* examination was not permitted.

The causation is the most interesting question. Were the chorea and the acute delirium, or either of them, caused by the scarlet fever, or the resulting nephritis, or was the association merely accidental? The mental symptoms are the more easily explained. Acute delirious mania occurs as a rarity during convalescence from scarlet fever, but it is a question whether there is not always in such cases nephritis. In Bright's disease mental symptoms often occur, and in uræmia just such a delirium as this boy suffered from is not very uncommon. But again the same delirium may occur in chorea insaniens without any trouble with the kidneys. The problem is complex, but I believe in this case it was the delirium of Bright's disease.

As to the chorea the problem is still more difficult. It would take us far beyond the limits of this paper to discuss the question of the relationship between all the acute infections, fevers, and chorea. After all of them chorea occasionally occurs. Scarlet fever, however, rarely immediately precedes. Thus in

Carslaw's [*] 533 cases of scarlet fever, chorea followed in only three; 268 of the 853 cases of chorea examined by Sinkler [†] gave a history of antecedent scarlet fever, but only eleven of them had occurred within a short time of the chorea. Sinkler's conclusion is that "it is highly improbable that there is any relationship between the two diseases." Sachs says, in his book on the Nervous Diseases of Children, "the causes which lead most directly to the development of St. Vitus' dance are (in the order of their importance), fright, various acute diseases, such as articular rheumatism, scarlatina, and cardiac disease, which so often accompanies the acute affections just mentioned." Gowers states that "chorea is so rare in association with acute specific diseases that such a coincidence is probably accidental; or, at most, the general disease only serves to excite the chorea in an indirect way." Osler [‡] says "with the exception of acute polyarthritis (rheumatic fever) and certain forms of septicæmia there is no very intimate relation between chorea minor and the infective disorders." Triboulet reports one hundred cases which occurred in the course of acute febrile diseases. In four cases examination of the blood or cultures showed staphylococci. It is needless to quote further. Opinions vary much, but absolute data are wanting. That one disease sometimes follows another is not proof that one causes the other. We have no statistics to show what the mere mathematical chance of any child getting chorea is. The same is true of scarlet fever. We only know that both diseases are very common and almost always occur independently of each other. We have no positive proof that scarlet fever can even so change the constitution of a child as to make it more susceptible to chorea months or years after. If there were any close relation between the two diseases they would be associated much more frequently. Chorea with or without delirium rarely occurs in Bright's disease due to other causes than scarlet fever. Thus of Dr. Alice Bennett's [‖] sixty cases of insanity occurring during and presumably caused by Bright's disease, but two were complicated by chorea and both of them were also puerperal. Acute nephritis was found in two of the seventy-three autopsies tabulated by Osler. He claims nephritis among the incidental lesions. Twitching of the extremities is not uncommon in uræmia, but true chorea is certainly too infrequent to permit us to regard Bright's disease as a cause. What the cause of chorea is, or whether there is one cause: whether it may not be the result of many influences—some physical, as for example, microbic poisons, others purely psychical, as fright, we do not know. This much only can be said: Fright may cause chorea in an apparently healthy child; many acute diseases may precede it. Rheumatism is so frequently associated with it as to compel belief in the existence of a close relation between the two, and valvular heart disease is the one almost constant lesion found after death.

---

[*] Glasgow Medical Journal, 1891.

[†] Nervous Diseases by American authors.

[‡] Chorea and Choreiform Affections.

[‖] Alienist and Neurologist, 1890.

Preventive Inoculation against Diphtheria.—Kármán (*Pester Med.-Chir. Presse*), was entrusted by the Hungarian Government with the task of instituting measures for preventing the spread of diphtheria in the village and its neighborhood. As general hygienic regulations accomplished nothing, he tried preventive inoculation with concentrated Preirz's serum—1 ccm. for children less than one year old, 2 ccm. for those between one and three, and 3 ccm. for those above three. Among 114 children thus treated, there was during the next two months, no case of diphtheria, although the disease was prevalent in the village up to the date at which inoculation commenced and contined to rage in the surrounding villages afterward. During those two months only one case of diphtheria appeared in the village under consideration, and this was in an uninoculated child, while in the previous five months 18.3 per cent. of the village children had been attacked, of whom eight died, six not having been treated with serum. Considering the wretched hygienic condition of the village, the harmlessness of preventive inoculations and the continuance of the disease in the neighboring villages, where diphtheria vaccination was not carried out, the extraordinary value of the inoculations in the prophylaxis of diphtheria can hardly be denied.—*British Medical Journal.*

Clinical Memoranda.

A CASE OF CONGENITAL ANGIOMA.*

BY AUGUST SCHACHNER, M.D.

Demonstrator of Anatomy in the Louisville Medical College; Visiting Surgeon to the Louisville City Hospital, Louisville.

M. S., a female, aged five years, was referred to me from a town in Indiana with the following history: At birth some enlargement of the neck was noticed. This gradually universally increased. During the last two years, however, its growth was more rapid than it had been the three years previous. Upon its most prominent point could be noticed a discoloration, not unlike that of a bruise of a few days' standing; that is, yellow, red, and greenish hues could be seen. With the child came a letter from the attending physician, stating that he had inserted a hypodermic needle and drew from the tumor pure blood.

The tumor when seen had its most prominent point just below and anterior to the angle of the jaw; it extended down the neck to within the lower one-third and up almost to the zygomatic arch; posteriorly it reached to the mastoid process, and anteriorly to within about one inch of the mental process. It was practically immovable upon manipulation. Palpation revealed an indistinct fluctuating sensation. As the hypodermic needle had already been introduced, I followed the examination with several additional punctures, in each instance drawing pure blood. The tumor was not pulsating.

In view of the nature of the growth, of the possible dangers of death upon the table from hemorrhage, the father was made acquainted with the exact state of affairs, and after agreeing to abide by the result, the operation was commenced. An incision was made from the mastoid process, curving linear in its direction, reaching forward almost to the mental process. This circular flap was turned back and careful exploration made into the lowest margins of the tumor, hoping if possible to cut off some of the main vessels supplying the growth. It was soon evident, however, that instead of some distinct vessel supplying the tumor, it was made up of an immense network of very thin-walled vessels. Enucleation was carried on from below upwards. When the tumor had been completely enucleated the entire neck, from the mastoid process to the mental process, and from within the lower one-third to the zygomatic arch, was laid bare. All the triangles except the inferior carotid were more or less exposed. The wound was well irrigated with salt solution and closed. Before closure, however, it was partly packed with iodoform gauze. Union, excepting at the point occupied by the drain, was primary. The drain was removed at the end of the third day, and the stitches removed on the eighth day. During the operation, which lasted almost three hours, the pedicle was tied off with braided silk; this kept up some irritation, but was removed at the end of twelve days by re-opening the cicatrix at its posterior extremity.

---

* Reported to the Louisville Clinical Society.

The facial nerve and some of the fibres of the spinal accessory nerve were severed. The wry-neck disappeared within two weeks, and although there was still marked facial paralysis at the end of three weeks, yet by this time the condition had so improved that she was able to close the eye upon the corresponding side, which she was absolutely unable to do during the first two weeks subsequent to the operation. At the end of three weeks the patient was discharged, the wound having completely healed, with but the facial paralysis remaining, and from the course which this has taken, it is safe to predict that her face will eventually be perfectly straight.

The cicatrix, although quite a long one, is entirely beneath the jaw, and will for the most part occupy the position of one of the wrinkles in the neck, making but very little disfigurement.

Hæmophilia in an Infant.—Comby (*Bull. et Mem. de la Société Médicale des Hôpitaux*) records the case of a girl, aged eleven months, in whom from the third week there had been continuous hæmorrhages from the nose, mouth, and rectum, and into the skin, without, however, impairing in any manifest way the child's development. There was a history on the father's side of hæmophilia, but not on the mother's. The patient was the only living child; there had been two other girls who had died in infancy, but had not shown signs of hæmophilia.—*British Medical Journal.*

Clinical Sketch.

TETANY.

BY FLOYD M. CRANDALL, M.D.

Tetany is a disease characterized by clonic muscular spasms, affecting chiefly the extremities. It occurs at all ages, but is far more common in infancy than in later life. Of the American cases collected by Griffith, 66 per cent. were under two years of age. Males are more commonly affected than females. Gastro-intestinal irritation would seem to be the most frequent exciting cause. The pathology is obscure. No constant gross lesions have been found, but the evidence seems to point to disturbance of the nerve centres of the medulla and spinal cord. The association of tetany with rickets is too frequent to be regarded as coincidence. Rickets must be considered as one of the most frequent predisposing causes.

The onset of the paroxysms may be preceded by sensory symptoms, but is commonly sudden and without warning. The attack frequently occurs as the child awakens from sleep. The spasm is sometimes continuous, lasting for days or weeks. The whole duration of the disease varies from a few days to several weeks.

The position assumed by the hands and feet is usually very characteristic. The phalanges are extended, but the fingers are flexed at their junction with the hand; the wrist is flexed at a sharp angle and the whole hand is frequently drawn to the ulnar side. The thumbs are strongly adducted. This position of the thumbs, together with the straight fingers, which are frequently drawn into a cone-shaped group, forms the condition known as accoucheur's hand. The toes are flexed like the fingers, the phalanges being extended. The foot is so strongly extended as to cause the plantar surface to form an arch, while the dorsum stands out prominently. This carpo-pedal spasm is one of the most characteristic symptoms of the disease. The muscles of the calf are rigid. In many cases the spasm is thus limited to the arms and legs. Occasionally the adductors of the thigh and arm are involved, so that the arms and legs are drawn forcibly together. In rare cases the muscles of the neck are involved and occasionally those of the trunk and face. Laryngismus stridulus is a very frequent accompaniment of tetany. A peculiar suppressed sound is sometimes heard in the throat due to spasm of the glottis, which cannot be strictly called laryngismus. Trismus is extremely rare in tetany and never occurs in the early stage as it does in tetanus.

In a true case of tetany in the interval between the paroxysms, pressure upon the large nerve trunks and arteries of the region affected will frequently induce a paroxysm. When this result occurs it is very characteristic and is known as Trousseau's sign.

There is no loss of consciousness in tetany. The knee-jerk is exaggerated, as are also the cutaneous reflexes; the electrical reactions are usually increased. The temperature is normal.

Older patients frequently complain of pain due to the intense contraction of the hands and feet. Infants sometimes utter a suppressed cry, as if in pain, when the paroxysm is intense.

A case occurring in the writer's practice presented the following symptoms: After uttering a suppressed stridulous sound the child would go into a convulsion, lasting for about two minutes. The face was slightly affected, the muscles about the mouth being chiefly involved. The jaw was closed and the muscles at the corners of the mouth were drawn, giving a ghastly, grinning expression. The arms were drawn to the side in a series of remitting paroxysms. The forearms were drawn across the front of the body, the wrists being strongly flexed and the fingers flexed at the metacarpo-phalangeal articulation. The legs were extended; the toes were strongly flexed and the instep was rounded over, the foot as a whole being adducted so that the toes were drawn against and across each other. The general position of the child was that of extension, but there was no opisthotonos. As the paroxysm relaxed, there were a few faintly stridulous sounds and sometimes a distinct attack of laryngismus stridulus. After the attack the child immediately recovered, and appeared to be in a perfectly normal condition. He was breast fed but was freely fed, also, from the table. He gave a history of indigestion and vomiting, with the bowels alternately relaxed and constipated. He was markedly rhachitic, but no craniotabes could be detected. A brisk cathartic was prescribed and strict rules regarding his feeding were laid down. During twenty-four hours the child had over twenty paroxysms. They then rapidly diminished in requency, and soon ceased permanently.

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

JANUARY, 1898.

Edited by FLOYD M. CRANDALL, M.D.,
Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician, Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241–243 WEST 23D STREET, NEW YORK.

RHEUMATISM IN CHILDREN.

It is a recognized fact that many diseases present peculiar clinical characters in young children which are not seen in adults. In some diseases the clinical course is so dissimilar in infants and adults as to make them seem like totally different conditions. This is particularly true of rheumatism, and led to the belief in former years that the disease did not occur in early childhood. It is now known that that belief was an error.

Among those who have studied rheumatism in children most carefully and have done most to correct older errors of belief regarding it, is Dr. W. B. Cheadle, of London. In a recent article in *Treatment,* he describes the various peculiarities of the disease in the young and writes most judiciously regarding the treatment. He refers particularly to the fact that the risk of cardiac complications in acute rheumatism is in inverse proportion to the age of the patient. Hence the great importance of an early and correct diagnosis of rheumatism in children. But such a diagnosis is, unfortunately, often very difficult to make, and not uncommonly acute rheumatism is only thought of as a cause of some childish ailment when irremediable damage has been done to the heart by an endocarditis or pericarditis which has run an insidious course. And yet, if sought for carefully, there are in nearly every instance certain symptoms which ought to suggest the true nature of the ailment.

The mistakes made in the diagnosis of acute rheumatism in children arise chiefly from the fact that in this class of patients the symptoms of arthritis, acid sweats, and pyrexia, to which we trust chiefly in diagnosing the disease in older people, are less prominent. The disease runs what in the adult would be called a sub-acute course. In acute rheumatism of early life arthritis is at its minimum; endocarditis, pericarditis, and chorea at their maximum; pleurisy, tonsillitis, and the vasomotor and hemorrhagic phenomena, the erythemata and purpura, are more common, tending to decline as puberty is passed. There is also a special tendency in children for the various phases of the affection to arise independently and apart from one another. This is an important point, which Dr. Cheadle was one of the first to point out. Endocarditis or pericarditis may arise in a rheumatic child not only without any accompanying joint affection but, in rare instances, without any recognized rheumatic phenomena to give warning of the nature of the true complaint. As a rule, however, a slight stiffness of the joints, chorea, crop of nodules, or erythema give some slight indication of a rheumatic condition. When a case of endocarditis or pericarditis arises in a child there is always a strong *prima facie* presumption that it is rheumatic. If, with the cardiac affections, we have chorea, fibrous nodules, tonsillitis, erythema or pleurisy, whether these have occurred recently or have cropped up at intervals through months or even years, the cardiac inflammation is, almost certainly, rheumatic.

The existence of a family predisposition is of great significance. The occurrence of the conditions mentioned above and even the presence of the subcutaneous nodules alone, which are pathognomonic of rheumatism, are sufficient for diagnosis. As the heart affection is so serious in children this organ should be carefully examined whenever any of these rheumatic symptoms are met with, and in every feverish attack, simple though it may appear, the condition of the heart should be regularly ascertained.

DIET IN THE FEBRILE DISEASES OF CHILDREN.

The proper regulation of the diet is as important in the febrile diseases of children as the medicinal treatment. As it is more difficult to feed young children in health than to feed adults, so in disease the question of diet is not only a more difficult one but is, also, of greater importance. The infant often has a very slight hold upon life, and even when the disease does not seem serious it sometimes requires but a trifle to loosen it. When the child's life hangs in the balance, failure of the stomach to do its proper work may prove fatal. In any case it adds to the seriousness of the illness and delays recovery.

In the feeding of sick children three errors are common—too frequent feeding and the administration of too much and of too rich food. The digestive powers are diminished by fever even more in children than in adults. Less food, therefore, should be given in each twenty-four hours than in health, and it should be more diluted. It is a serious error to give milk to a sick child every few minutes. The child frequently takes it eagerly, not because it is hungry, but to allay thirst. It should not be forgotten that milk, while liquid outside the body, becomes a solid in the stomach and is a tax upon the digestive power. When milk is given at such frequent intervals it often happens when the critical period arrives, that the overburdened stomach refuses to do its work. Complete loss of appetite, and perhaps vomiting, indigestion, and gastro-enteritis are added as a complication to the original disease. Simple loss of appetite, by depriving the child of the nourishment it so urgently needs, may in serious cases prove a fatal complication.

A careful record should be kept of the exact amount of food taken and retained during each twenty-four hours. The impressions of a nurse or mother are frequently so unreliable that the medical attendant can in no other way form a correct opinion as to the amount of nourishment his patient is getting. The importance of thus keeping a record of the quantity of food cannot be too strongly insisted upon.

As to the food to be selected in the acute fevers of children the chief reliance may in most cases be placed upon milk, diluted according to the age of the child and peptonized if necessary. Next to milk in importance, are beef-broth, mutton-broth, beef-juice, wine-whey, and oatmeal of barley gruel. They should be given in amounts suitable to the age of the child, and, except when indicated for short intervals, the frequency of their administration should rarely be less than two hours.

Among the papers read before the National Conference of Mayors and Councilmen, held at Columbus, Ohio, during September, was one on "The Influence of a Pure Milk Supply on the Death Rate of Children," by Nathan Straus, of New York, the founder of the depots for the supply of sterilized milk to the poor. Mr. Straus said, in part, as reported by the Journal of the American Medical Association: "There is practically no milk delivered for general consumption in cities that is fit to be fed in its natural state to young children. I think I have fairly demonstrated the proposition that many thousands of infant lives are annually sacrificed by the neglect to supply, for the nutriment of children, milk which has been sterilized. I hold that neglect to be criminal, and I leave it to you to fix the responsibility for it. We punish murder with the penalty of death, and yet we allow murder to be committed by the wholesale in every populous community of this land, with no thought of its punishment and little thought of its prevention."

We beg to remind some of our contemporaries that a name is a quantity of fixed value and is not changeable at the caprice of every writer. It is not one of the inalienable rights of an American citizen to spell men's names according to his own whim and fancy, but rather as the man who owns the name spells it. The same is true as regards the name of a medical journal. The name of this journal is the ARCHIVES OF PEDIATRICS, and so it should be written. Individual preferences regarding the use of a single letter or a diphthong in spelling a word should not modify the spelling of a proper name containing that word. We are frequently called the "ARCHIVES OF PÆDIATRICS," and the *Canada Lancet* even charges us with being the "ARCH. OF PŒDIATRICS," and this, too, on the same page in which it several times speaks of "pediatrics." As this occurs in the same paragraph in which the name of a prominent pediatric writer is misspelled, we ought not, we suppose, to complain, nor be surprised at an error made regarding the meaning of a very common English word.

Owing to the vigorous efforts of the secretary, the programme of the Pediatric Section of the American Medical Association is already assuming definite shape. Many papers have been promised and the discussions will be made an important feature. Under the leadership of Dr. J. P. Crozer Griffith, the chairman, and Dr. Edwin Rosenthal, the secretary, the meeting gives promise of being a highly successful one.

General Paralysis in the Young.—Alzheimer (*Allg. Zeitschr. f. Psychiatrie*) has collected the recorded cases of general paralysis of the insane occurring in children and young persons. Thirty-eight cases have been reported, and to these the writer adds three observed by himself, one beginning at the age of nine years. The onset in eight cases was in the thirteenth or fourteenth year; in eleven cases it was in the fifteenth or sixteenth year. In twenty-eight out of thirty-four cases, hereditary syphilis was certain or probable, and in more than half the cases there was some neurotic heredity. The symptoms and pathology were the same as in adults, and the duration of the disease was about four and a half years in most of the cases.—*British Medical Journal.*

Bibliography.

Constipation in Adults and Children, with Special Reference to Habitual Constipation and its most Successful Treatment by the Mechanical Methods, by H. Illoway, M.D., formerly Professor of Diseases of Children, Cincinnati College of Medicine and Surgery; formerly Visiting Physician to the Jewish Hospital, Cincinnati, etc., etc.; Member of the Medical Society of the County of New York, etc. New York: The Macmillan Company; London: Macmillan & Co., Ltd., 1897. Pp. xvi., 495. Cloth, $4.00.

This is, perhaps, the most extended work that has yet appeared in English upon the subject of constipation. The greater portion is devoted to constipation in the adult, and is, on the whole, a very complete treatise. The author relies largely upon massage and advances several new and somewhat peculiar ideas.

About one hundred pages are devoted to constipation in infants and children. The subject is divided into two general divisions: Congenital constipation and acquired constipation. By congenital constipation he means that constipation or complete obstruction due to malformations and anomalies of the digestive tract. The chapter is chiefly filled with the histories of the cases illustrative of these various conditions. It contains much valuable information. Under the caption on acquired constipation, we find a somewhat peculiar classification:—acute constipation and chronic constipation. By the former the author means the complete cessation of bowel movement, due to intussusception, hernia, injuries and foreign bodies. Chronic constipation is still farther divided into (1) chronic constipation dependent upon an abnormal condition of one or more organs and (2) habitual constipation due to functional disturbance.

The chapters on the causes of habitual constipation are incomplete and not satisfactory. While the remarks upon the indiscriminate use of drugs and stimulants in children are excellent, the pages devoted to the subject of feeding leave much to be desired. In speaking of the constipation of breast fed babies, chief stress is laid upon an excessive quantity of caseine and possibly in a deficiency of sugar. The relation of fat in the milk to constipation is barely referred to. We are unwilling to agree with the author that defects in the mother's milk only occasionally account for the constipation, and that "in the majority of cases nothing will be found therein on the most careful analysis, and only the constipation of the mother will explain the constipation of the infant."

It was not to be expected that the author would enter largely into the subject of infant feeding, but more definite instruction regarding the constituents of the food might very properly have been given. His remarks regarding over-feeding and too frequent feeding are most excellent. He seems to be quite unconscious of recent pediatric work and the teachings of the more recent writers, for he ignores some of the best work that has been done during the past few years.

Next to massage, the use of enemata seems to be the measure upon which the author most relies in the treatment of constipation in young infants. Under three months he advises the use of one and a half to three ounces of water. After that age, the fountain syringe is advised. As routine practice this does not seem to us advisable. The amount of fluid in most cases must be steadily increased or the enema will be ineffectual. The tendency to use too much fluid thus becomes very strong. Even the amounts advised by the author, it seems to us, are somewhat excessive. The author places his chief reliance upon massage, and the chapter devoted to that subject could not be improved. The chief difficulty in carrying out this mode of treatment is the fact that it must be entrusted to the mother or nurse, and many of the manipulations described could not be, with safety, entrusted to harsh and unskilled hands.

On the whole the book does not add materially to our knowledge of constipation in children and will not prove of more value for practical use than will the chapters on the subject of constipation in several recent works on pediatrics.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, November 11, 1897.

J. HENRY FRUITNIGHT, M.D., CHAIRMAN.

CONGENITAL ANGIOMA OF THE PALATE.

DR. W. M. BERKLEY reported a case of this kind, and exhibited specimens under the microscope. On November 15, 1896, about half an hour after its birth, an infant had been brought to the Presbyterian Hospital with a smooth tumor, about the size of a man's fist, projecting from its mouth. It was found to be attached to the hard palate, and was removed by Dr. A. J. McCosh with an écraseur. The infant stood the operation well, but the discharge from the mouth soon set up a septic pneumonia, and the child died on the fifth day. As a result of a prolonged immersion in formalin the tumor had shrunken to half its original size, but it still measured 10 x 5 ctm., and weighed 51.5 grm. On section, it was found to be partly composed of cysts containing clear serum. The microscope showed its structure to be made up for the most part of blood vessels and a finely reticulated tissue, in which were numerous round or oblong cells with large nuclei. There were also encapsulated groups of fairly typical cartilage cells. The sheath consisted of stratified epithelium, and at no point were hairs found. The tumor was most probably a benign growth.

Dr. Berkley said that these cases were quite rare. In reviewing the literature, he had found reports of two cases that were of interest in connection with the one just presented. In the first of these, a child died of suffocation at birth, and examination showed a tumor lying lengthwise above the epiglottis and attached to the tongue. The other case was one of congenital tumor of the palate, which was covered with lanugo hairs, but did not project far from the mouth. The tumor grew from the solid bone, although the child also had a cleft palate.

LATERAL CURVATURE OF THE SPINE, AND POSSIBLY A PRIMARY NEW GROWTH OF THE PLEURA.

Dr. J. S. Ferguson presented a slender girl of fourteen years, who had first come to him on July 19, 1897, because of a lateral curvature of the spine that had first been noticed only two months before. She stated that the curvature had increased rapidly during this comparatively short time. She had been in good health previously, and the family history was good. Examination showed slight lordosis, marked lateral curvature of the spine to the right, limitation of the motion of the chest on that side, and a distinct bulging below and slightly in front of the lower angle of the right scapula. The left side of the chest was apparently normal. Over this region the vocal fremitus and respiratory sounds were diminished, and percussion revealed marked dulness with a distinct sense of resistance. Examination of the blood showed the ratio of the white to the red corpuscles to be 1 to 200, the hæmoglobin 81 per cent., and a slight increase in the polynuclear forms at the expense of the mononuclear. On September 16th it was found that the circumference of the chest at the nipple level had increased half an inch, and there was a slight increase in the eosinophiles on examination of the blood. During September she had occasional sharp pain beneath the right scapula, and by the end of October it was noted that there had been a still farther increase of the circumference of the chest of five-eighths of an inch. On November 9th paracentesis of the thorax was performed near the right scapula, but with negative result. During all this time the temperature had risen but little above the normal, and the pulse had varied between 80 and 104. The existence of the area of dulness in the middle, and not extending to the bottom of the pleural cavity, the fact that it remained unchanged with varying postures of the patient, the rapid extension of the area involved, the absence of marked polynuclear leucocytosis such as would accompany an inflammatory process, together with the physical signs already enumerated, seemed to the speaker sufficient to justify the diagnosis of a new growth.

Dr. A. Jacobi said that he was unable to convince himself of the presence of a tumor in this case. There was dulness over a small area, but good resonance elsewhere, and this resonance was increased when percussion was made while the patient was suspended and the spine straightened. There was always some dulness in these cases of lateral curvature, which was to be explained partly by increased muscle development, and partly by the rotation of the vertebræ. It was highly probable that this condition of marked scoliosis had existed for a much longer time than would appear from the history given.

DR. L. EMMETT HOLT said that this was not the kind of lateral curvature usually observed in connection with pulmonary disease; it was, on the contrary, a typical rotary lateral curvature.

DR. H. KOPLIK said that the diminution in the respiratory murmur might be explained by the existence of emphysema, and the dulness by the increased muscle mass and also by the rotation of the vertebræ.

DR. N. E. BRILL AND DR. WALTER L. CARR also concurred in the view that there was no new growth present, and that the physical signs were entirely explicable by the marked and rapidly increasing rotary lateral curvature of the spine.

DR. FERGUSON, in closing the discussion, said that he had not offered the diagnosis of a new growth as a positive one, yet he had felt that such a view would alone explain the physical signs.

THE CLINICAL AND PATHOLOGICAL INTERPRETATION OF CHOREIFORM MOVEMENTS CALLED TICS, WITH SPECIAL REFERENCE TO THEIR TREATMENT.

DR. JOSEPH COLLINS read a paper with this title. He defined "tic" as a twitching, generally consisting in an abrupt, rapid, and usually uncontrollable movement, the result of the contraction of individual muscles or groups of muscles, which act together to fulfill some physiological purpose, and reproducing in an exaggerated form some physiological act. All tics might be primarily classified as: (1), senile; and (2), early. The latter might be divided into (*a*) degenerative and (*b*) acquired. Early tic, whether degenerative or acquired, might be further divided into: (1), motor tics; and (2), psycho-motor tics. The latter were relatively uncommon, especially in this country. Tics of all kinds occur in childhood and early adolescence, often following upon emotion or bodily fatigue, and the victims are commonly members of neuropathic families. Simple motor tics might be the result of many different conditions affecting the motor areas of the brain, although the immediate antecedent was probably a nutritional depravity. As a whole, tics were to be regarded as degenerative conditions. Stigmata of degeneration had been obvious in fully 60 per cent. of the author's cases. In considering this part of the subject, he assumed the general acceptance of the doctrine that all abnormal people were divided into "superior degenerates" and "inferior degenerates." The former included many individuals of marked intellectual power, such as artists and poets; in the latter, the intellectual possessions were all below the normal. Some of the stigmata observed were: Changes in the shape of the extremities for the particular race; malformations of the crania; deformities of the ears; changes in the shape of ocular aperture; undue prominence of the lower jaw; the taurus palatinus and the excessively arched foot. These were as likely to be found in the superior as in the inferior degenerate, suffering with tic. While it was true that patients suffering from tic frequently exhibited certain bodily defects, such as anomalies of refraction, this was no reason for concluding, as some have done, that the correction of such defects would relieve the tic.

In considering the prognosis, it should be borne in mind that tic is a disease exhibiting a natural tendency toward progression. The earlier and more extensive the development of tic, and the more vital the parts affected, the less the chance of cure; also the further removed the patient is from the normal, and the longer the duration of the disease, the less the chance of improvement. Persons suffering from tic, and presenting psychical stigmata rarely become normal individuals.

The treatment resolved itself into the treatment of the twitching and of the neurosis of which the twitching was only a manifestation. If the patient were a child, it should be taken from school, given plenty of out-door life, taught the importance of self control, and given tonics. Of course, all sources of pathological reflexes should be sought for, and as far as possible corrected, but the physician should ever remember that such patching could not replace the evolutionary work of centuries. The application of the galvanic current to the side of the neck, and the use of massage were often beneficial. If the nerves were thoroughly stretched, the spasm would be overcome. When drugs were elected to be used, these should not be given half-heartedly—indeed his experience had convinced him that where it was desired to influence chronic nervous diseases of a slowly progressive type, *e.g.*, by the administration of the bromides, or the salts of copper or silver, the drug selected must be given in the largest possible dose compatible with the maintenance of life. In addition to this active medication, the education of these children should be so conducted as to increase the stability of the nervous system, and at the same time maintain the nutrition at the highest possible point. Manifestations of precociousness should be discouraged and the patient urged to develop self-control to the utmost.

DR. A. JACOBI said that he had been able to cure many cases of tic because he had given a good deal of attention to the etiology. In 1886 he had published an article entitled, "Partial or Generalized Chorea Dependent upon Nasal Reflex," in which he had related his experience with many cases of tic that had been dependent, not upon cerebral degeneration, but upon degeneration of the mucous membrane and sub-mucous tissue of the nasal passages. Since then a number of authorities had taken the same position. While he hesitated to say it, he was, nevertheless, of the opinion that there were a few cases on record in which epilepsy had been caused by nasal irritation, and had been actually cured by attention to the nose and naso-pharynx. Tic was an involuntary contraction of the muscles; on the other hand, in cholera the irregular muscular contractions were always the result of intentional movements. He wished to emphasize the fact that tic is not always the result of degeneration. All the stigmata enumerated by the reader of the paper were those claimed to be found in criminals.

DR. B. SACHS said that there did not seem to him to be such a marked distinction between chorea, tic, and myoclonus as would be inferred from the statements of Dr. Collins. The cases referred to by Dr. Jacobi were more closely related to choreic affections than to tic convulsif. He thought there was a great difference between an ordinary facial tic and the so-called degenerative neurosis, tic convulsif. He regretted that Dr. Collins attached so much importance to these newer and not generally accepted doctrines regarding degeneration, and he was positive that facial tics were found in many individuals who did not exhibit a single stigmata of degeneration. In the treatment of tics, the correct therapeutic principle, he thought, was not, as had been stated in the paper, to poison the patient, but to give the smallest possible dose that would control the disease. He had not seen much benefit from the use of the salts of copper and silver, and while his best results had been obtained from hypodermic injections of atropia, he did not look upon this as curative.

DR. L. E. HOLT said that, in his hands, all the specific drugs had been lamentable failures, and he now relied solely on improving the general condition by proper attention to hygiene.

DR. COLLINS, in closing the discussion, said that his statistics would bear out the position that he had taken regarding tic being a degenerative disease.

Perityphlitis in Children.—Karewsky of Berlin (*Deutsche Med. Wochenschr.*), points out that published statistics show that perityphlitis is very rarely met with in hospitals where the affection is not submitted to operation, while in others it is comparatively common. In children, as compared with the adult, the favorable cases in which the lesion is circumscribed are much less frequently met with by surgeons than the much more dangerous diffuse variety. The author's statistics of appendicitis in children subjected to operation embrace 142 cases, with 45 deaths. The best results were obtained in those which were operated upon at an early stage. The prognosis is influenced unfavorably by the failure to recognize the disease, and by mistaken therapeutic measures, when cases first come under obser-vation. The use of purgatives during the early stages is regarded as especially dangerous; cases thus treated proved unusually serious. The symptoms attending the onset of appendicitis are ascribed to dyspepsia, obstruction, etc., and it is unfortunate that none of the classical phenomena of diffuse appendicitis may be present. The pulse and temperature are not reliable guides as to the gravity of the lesion.—*Edinburgh Medical Journal.*

THE PHILADELPHIA PEDIATRIC SOCIETY.

Meeting of October 12, 1897.

J. P. CROZER GRIFFITH, M.D., PRESIDENT.

DR. F. A. PACKARD presented patients showing congenital deformities of the extremities.

DISCUSSION.

DR. J. T. RUGH.—These cases are of great interest from an orthopædic standpoint, and the case of this boy, I think, is scarcely (from the casual examination I have made), one of intra-uterine amputation, but rather a case of arrested development. There seem to be one or two rudimentary nails at the end of the stump, which would be lacking had amputation taken place. I think the case one of arrest of development at the carpo-metacarpal articulation. I have seen a case of intra-uterine amputation very much like that of the little girl, which is undoubtedly such. I call to mind the case of a man forty-five years old, whom I saw while resident in the Jefferson, who had a double thumb, each member completely separate and both articulating with the distal extremity of the metacarpal bone. He was able to grasp an object between these thumbs with a movement like that of a crab's claw. Each thumb was complete in its formation. Each had its nail and its proper quota of bones.

Another peculiar case which I saw in the Polyclinic Hospital was that of a girl fourteen years of age who had on one hand a finger in place of the thumb. The member bore all the characteristics of an index finger, and had three phalanges. On the other hand the corresponding digit was part finger and part thumb, having two phalanges and a large sesamoid bone. In that family there was a history of other cases of similar malformation in several generations, as is so frequent in many of these cases.

DR. C. W. BURR read a paper on a case of chorea occurring in Bright's disease, due to scarlet fever. (See page 29.)

DISCUSSION.

DR. E. E. GRAHAM.—Did the movements largely cease during the two weeks the patient was under treatment?

DR. C. W. BURR.—The patient was under treatment much longer than two weeks. In the first fortnight that he was in the house there was no improvement at all, then the movements and the insanity both ceased, then while still under treatment they both again appeared and remained until death.

Dr. Griffith.—I have always believed that there is a very decided relation between rheumatism and St. Vitus' dance. If it is true it is probably explained by the presence of some toxic substance in the blood which is capable of producing different toxic effects.

Dr. Thompson S. Westcott read a paper on "A Simple Method of Calculating the Quantities of Cream and Whole Milk to Make any Formulæ for Home Modification." (See page 21.)

DISCUSSION.

Dr. Alonzo E. Taylor.—As I understand it, Dr. Westcott's formula is based upon the composition of the Walker-Gordon Laboratory milk. I think he suggested first-class milk containing 4 per cent. of proteid or approximating it. This does not hold good of public milk; it contains 3¼ per cent. commonly or 2¼ or even 1½ per cent., sugar 60 per cent., of normal fats 60 to 80 per cent. I learned this from an examination I made last year of ordinary market milk. It was always low, never high, the deficiency being most marked in the fats and proteids; that is in ordinary milk, not dairy milk, which I did not test.

Dr. F. A. Packard.—In the Babies' Ward in the Children's Hospital we have been using altogether the formula of Holt with 12 per cent. cream and 6 or 7 per cent. sugar solution. While it is perfectly true the figures do not work out accurately, for practical clinical purposes it is satisfactory. I believe the more practically accurate we can get our prescriptions for babies' feeding, the better we will get along, and if this formula will provide a more accurate method of making up our fat, proteid, and carbohydrate preparations, that is the one we need to use. The trouble is with our milk supplies. At the Children's Hospital this year before we started this plan I found that we were taking milk from a milkman from the country and determined to test the milk, and found the way that milk varied was surprising. It varied from day to day. We tested particularly for fat. While our method was not very satisfactory, we used the same method each time. I determined to wait a while and tested the milk again in a few weeks, and again it varied. The man was a good milkman as milkmen go, but only as far as milkmen go. We are now using cream from the Walker-Gordon Laboratory as the only available cream of known and constant fat percentage.

Dr. Griffith.—This whole question seems to me one of getting a cream that is at all satisfactory. Even if we assume that fairly good dairy milk has a pretty fair percentage of albuminoids, which is the principle the Walker-Gordon Laboratory goes on, say 4 per cent., we cannot be very sure of the cream. We do not know how the cream was gathered, whether it is centrifuge or skimmed cream, and it certainly varies very greatly. It is very well-known that some milk will part with its cream much more readily than other milk will. It has been proven, for instance, that some milk may not give a larger percentage of cream than skimmed milk; yet on analyzing that milk with the Babcock centrifuge you may find that there is really a normal percentage of fat present. Of course this objection to the use of this method of the creamometer applies as well to the use of top milk. We cannot even with this method tell what proportion of fat is actually present in the top milk, so we are really in a hopeless condition, unless we not only follow some good formula, but also can obtain a standard cream. But if patients are poor and cannot bear the expense of definite percentage cream, or if physicians happen to live in the country, there seems to be no very good way of determining what percentage of fats the cream possesses unless the physician makes his own analysis. I call attention to the fact that we can buy one of the Babcock centrifuges for only $5, and it is a very simple matter for any physician living in the country or city to test the amount of fat in the cream. Then having a good amount of fat in the cream it is comparatively easy to compare the percentages of fat with the specific gravity of the milk, and thus to discover whether we have a high or low percentage of albuminoids. If we have milk which is under good control and comes from a good dairy, we may assume that the proteids are fairly normal. If we have once established the amount of fats and proteids, then we can go on a formula of our own in determining what proportion of milk or cream we shall use. Or we can follow the very excellent plan proposed by Dr. Westcott.

Dr. Westcott.—As I said in the course of the paper, unvarying accuracy can be expected only with milk and cream of definite analysis, such as is furnished by the Walker-Gordon Laboratories. At the same time, even with the ordinary run of fairly good milk and cream, the method I have proposed enables us to effect combinations with a much clearer idea of results than has previously been possible in the mixtures we have learned to give infants of various ages; a tablespoonful of cream, so many ounces of milk, so many ounces of water, and a teaspoonful of sugar of milk to the bottle. I must confess that I never could arrive at any definite idea of what I was giving in a mixture formulated this way.

In using ordinary milk and cream it would conduce to greater accuracy, before making up the formula, to have several analyses made of both the milk and cream to be used. The averages of these figures could then be used in the calculations, substituting the fat percentage for 12 and 4 in the second and third formula, and modifying the average proteid factor if the milk proteids differ much from 4 per cent.

After all, relative values are more important than absolute values at the start. If the first combination agrees well with the infant, the strength of the mixture in fat and proteids can be gradually increased by simply increasing the proportion of milk, but leaving the total quantity of mixture unchanged. In many cases of weak digestion in infants for whom I thought it highly important to have accurate percentage values as found in laboratory modification, the expense soon became burdensome, and I was compelled to give it up altogether and go back to some of the empiric methods of feeding, or to endeavor to imitate as nearly as possible the percentages that I had already been using. Thus, the method just described has been gradually elaborated, and has given me very satisfactory results in my practice. I believe it offers decided advantages over other plans for approximate modification when the laboratory mixture cannot be employed. Certainly for a child that has been fed on a percentage mixture it offers the most satisfactory means of changing to an ordinary home combination of the two every-day products of the ordinary dairy.

Dr. Alfred Hand, Jr., reported a case of scurvy in a child of eight months, the diet having been boiled milk and water from birth. Evidence of rhachitis existed in the shape of the head, the rosary, the enlarged epiphyses and the absence of teeth. For three weeks the child had been sleepless, and handling it, the legs especially, seemed to cause pain. There were present epistaxis, a petechial eruption on the abdomen and legs, and painful enlargements of the tibial heads. The striking features of the case were the absence of any sponginess of the gums (probably because there were no teeth), and the complete cure of the case on anti-scorbutic diet.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

Meeting at Philadelphia, October, 1897.

THE PRESENT MORTALITY RATE IN DIPHTHERIA: UPON WHAT ITS FURTHER REDUCTION BY THE SERUM TREATMENT WILL DEPEND.

DR. I. NEWTON SNIVELY in a paper on this subject referred to the fact that the American Pediatric Society made the significant statement that in its judgment the results from the serum treatment of diphtheria would gradually further improve. The reasons given for this statement were that (1) antitoxin is still frequently used too late, either from procrastination on the part of the physician or objections on the part of friends, (2) it is given in a half-hearted way and often in doses one-tenth to one-fourth as large as they should be. It has been frequently observed that the percentage of recoveries under antitoxin treatment has steadily increased from the beginning. The present mortality, the lowest ever recorded, is pronounced by most observers of large experience with the remedy, especially in private practice, as being too high to represent the power of the remedy.

The author quoted from Holt the statement that from the most trustworthy statistics it appears that the actual mortality from diphtheria, including membranous croup, has been reduced at least one-half by the general adoption of serum treatment, and in cases injected reasonably early the mortality is less than 5 per cent. The present mortality, all cases being included irrespective of the brand of antitoxin employed, or the day on which serum treatment was introduced, was stated as follows :

General, ...	8-10 per cent.
" antitoxin used reasonably early,	5-7 " "
Laryngeal types, . . .	21.2 " "

Operative laryngeal cases, . .	27 per cent.
Non-operative ‘‘ ‘‘ . .	17 ‘‘ ‘‘
Number of ‘‘ ‘‘ requiring operation,	17 ‘‘ ‘‘

The author then proceeded to show upon what a further reduction in the fatality of this disease, must, in his opinion, depend. He observed that a study of the vast accumulation of reliable literature on the subject shows great improvement in three distinct lines. (1) In the production of the remedy, a more concentrated and potent product being now available. (2) The treatment is introduced earlier than formerly. (3) Appreciating more and more the efficiency and harmlessness of the remedy, the physician uses larger doses and, where repetition is found necessary, waits a much shorter time. Along these lines the doctor then elaborated upon the subject.

Regarding the improvements made in the remedy the author observed that the greatest improvement yet made has been in producing a much more concentrated product. The antitoxins now available to the profession vary in potency from 50 to 500 immunizing units, to each cubic centimetre of serum. The major portion of the products range in strength from 100 to 200 units per cubic centimetre of serum. The most concentrated antitoxin in common use is that known to the profession as *extra potent*, (Mulford's) containing 500 units to each cubic centimetre.

The advantages of concentration were pointed out. Such serums disturb the tissues but little; because of the small quantity to be injected they are quickly absorbed and always produce earlier results. The advantages of concentration in producing earlier and better results were compared with those of tinctures and fluid extracts over the infusions of the older pharmacopias. Only such products are recognized in the recommendations of the American Pediatric Society.

It was common to speak in the early days of antitoxin treatment, of obtaining results from a curative dose in from twenty-four to forty-eight hours. During this time many severe cases necessarily terminated fatally, especially since repetition of the dose was delayed till the above time had fully elapsed. At present effects are expected in from twelve to sixteen hours, and are secured early in proportion to the degree of concentration of the antitoxin employed. The general employment of concentrated antitoxins of uniform quality will insure increasing success in the treatment of diphtheria and membranous croup.

The necessity for care in the selection of antitoxin was pointed out and the fact cited that examinations made by the Pennsylvania and Massachusetts State Boards of Health and the Medical News all show the presence on the market of serums of weak, variable and uncertain quality. The importance of eliminating such, either by proper state authorities, or by the careful practitioner, was emphasized as essential if the fullest powers of the remedy are to be secured.

The importance of instructing the laity to report all cases of throat ailment, especially early, was emphasized, and the reasons for the superior results from early antitoxin treatment pointed out. The tentative treatment of diphtheria and harsh mechanical interference with the local lesion, he continued, are sufficiently condemned by many years of high mortality under their general employment.

Antitoxin must be employed as any other antidote in order to obtain the greatest possible results. At present no rule for dosage can be laid down except that the dose should always be graded to the severity of the case, and that no dose of less than 1000 units should be considered a curative dose. The importance of the initial dose as compared with any other that may be required in an individual case was clearly pointed out. Experience has explicitly shown, that in severe cases one dose of 2000 units will result in a larger percentage of cures than will three or four doses of 1000 units each, given at intervals of from twelve to thirty-six hours. No maximum limit of dose has yet been ascertained and probably does not exist. Reports from large users of antitoxin show that at present curative doses ranging from 1000 to 6000 units are employed with excellent results.

The further increase in the rate of recovery from diphtheria will depend upon:

(*a*) The production and use of only concentrated antitoxin.

(*b*) The elimination from our market of all serums of variable, weak, and uncertain quality; no serum of less than 2000 units per cubic centimetre being accepted.

(*c*) The general employment of approved serum according to the best teaching of the profession.

(*d*) By treating each case of the disease as speedily as possible to neutralize the absorbed toxins and arrest the disease.

(*e*) By treating the constitution and the disease in the same way, namely, by meeting specific indications.

(*f*) By guarding against fear and other undue exertions, psychical and physical, on the part of the patient.

(*g*) By endeavoring, as physician, to maintain a reliable mental equipoise.

Current Literature.

MEDICINE.

Jacobi, A.: Jacksonian Epilepsy: Adenoma of Liver: Acute Ascites with Tubercle Bacilli. (*Transactions of the Association of American Physicians.* 1897.)

The history of this remarkable case is reported in great detail. The child had been in good health until she was six years old.

In September, 1891, she fell from a swing, hurting the left side of her head. She did not get pale nor vomit; she cried and appeared uninjured. In January or February, 1892, her right hand was noticed to twitch a little. In November she began to take music lessons, the twitching became stronger and more frequent, and the lessons were discontinued. On the first of November, 1893, she had, on waking in the morning, the first hard attack of convulsions, probably with loss of consciousness. The second attack of the kind took place on the 16th. There was complete loss of consciousness and slow recovery. Thick, incoherent talk; slight paralysis of the right arm. During two days previously, the child, who was remarkably observing and intelligent, had noticed fatigue and pain in her right arm, and told a playmate she was going to have an attack. On November 24th she complained of tiredness and numbness in both arms, more so in the left. She slept poorly during that night, and experienced slight twitchings in her right hand. Feeling an attack coming on at 6:30 A.M., she jumped up with the idea of preventing it. It was slight, with no loss of consciousness. Slight stiffness of legs. She said she had to hold on to the foot of her bed, as she was not quite steady. Afterwards she felt absolutely well, and played all day.

Most of the attacks would come on in the morning on waking up; they lasted mostly a few minutes, and were but rarely attended with unconsciousness. She would often laugh and joke immediately afterward. During most of the attacks, and often days before, the child was pale; sometimes she was irritable before or after them, in some instances for days. But very few times she had more severe attacks during her sleep, breathing heavily and shaking all over her body. Before she was taken to Europe in the summer of 1894, she had, however, only very few of these hard attacks. Up to this time, and also later, she enjoyed the occasional advice of Dr. S. Weir Mitchell. Drs. Gowers and Jackson saw her in London. It was principally the former who objected strenuously to the performance of an operation, the advisability of which had been suggested.

During the early part of 1895 the attacks ceased entirely while taking sixty grains of bromides daily, which, however, had a bad general effect.

During 1896 the case changed for the worse. There was a severe convulsion on January 2d; it began in the right arm, and was mostly confined to the right side. Unconsciousness lasted but a few minutes, but there were great weakness and numbness of the right arm. Her intellectual faculties suffered very much less than the arm from the attack. From this time until March there were numerous attacks which increased in frequency until as many as twenty-eight occurred in a single day. At this time she was seen by Dr. Dana, who regarded the attacks as quite typical examples of a Jacksonian epilepsy. She had had at no time any severe headaches, no vomiting, and had no optic neuritis. The diagnosis at the time was Jacksonian epilepsy, due probably to some slight degenerative changes in a limited area of the motor cortex. During the time of the greatest number and severity of the attacks large doses of bromides, up to 100 or even 120 grains, were given daily, together with, or without, the valerianate of zinc, and had often to be discontinued because of serious bromism. The only time in which the attacks ceased and the patient felt better at the same time was when she took urethan.

She continued this medication while in the Catskill Mountains all summer, 1896. Her general condition did not improve; she lost flesh and was pale, though in fairly good spirits most of the time. The amount of albumin in her urine, which was considerable while she was having her attacks, diminished.

In the following December, distension of the abdomen was noticed, and after a few days the abdominal cavity rapidly filled with fluid. The distention became so great that laparotomy became necessary. This was performed by Dr. McBurney, and more than a gallon of thin yellowish fluid was removed. The surface of the liver was shining and covered with very numerous yellowish-gray bodies. They were of different sizes, from the head of a pin to that of a bean. Those of the latter size were felt reaching far down into the liver tissue. They were taken to be tuberculous.

Microscopical examination revealed tubercule bacilli in the fluid. The child died six days after the operation.

The autopsy made by Dr. James Ewing showed the liver to be about normal in size. The surface and section were dotted with very numerous light yellow nodules, from pin-head to pea-sized, very sharply outlined from the surrounding tissue. They were not caseous, but otherwise closely resembled miliary tubercles. These proved, upon examination, to be miliary adenomata.

The lesions in the *lymph nodes* included:

1. A chronic inflammatory hyperplasia, with the production of new connective tissue, extensive exfoliation of endothelial cells, and atrophy of lymphoid cells.

2. An extreme dilatation of veins and capillaries, both within and without the nodes.

The *brain* was rather large, the convolutions not flattened. The pia mater was opaque, whitish, thickened, and rather hard over a large surface; moderately congested, mostly so over the region of the motor centres. This change was more perceptible on the left side than on the right. The structure of the brain appeared normal everywhere, the ventricles were empty, the plexuses normal.

The left half of the *cranium* was smaller and flatter than the right. Over the left motor centre there was a defect in the structure of the bone, 1¼ cm. wide and 2¼ cm. long, in a forward and downward direction. The bone was translucent, its outer surface quite smooth and on a level with the rest of the cranium, its inner surface depressed. This depression was quite sharp, as in craniotabic defects. There were two more such defects on the same left side, in a forward direction, quite as wide, but shorter—about 3 cm. from the median line. One more such spot was found over the left brow; another was located over the left motor centre, 1½ cm. long and 1½ cm. wide. The space of the large fontanelle, 2½ by 3 cm., was occupied by hard, thick, and rather irregular bone, which was surrounded by a narrow (about ¾ cm.) semi-transparent area. To the left of this, and rather forward and adjoining the coronal suture, was a triangular osseous island, also flanked by a transparent area.

The impressiones digitatæ and Pacchionian depressions were more pronounced on the left side. On the occiput, where a trauma was sustained five years previously, no abnormal condition was observed.

The clinical course of the disease, together with the autopsy findings, led to the following diagnosis: Chronic inflammatory hyperplasia of periportal and perihepatic lymph-nodes, of undetermined origin; partial compression of hepatic and portal veins; chronic congestion of liver and portal viscera; multiple miliary adenomata of liver; ascites; peritonitis (tubercle bacilli in the fluid); septicæmia.

From the pathological standpoint the obscure feature of the case is the relation of the swelling of the perihepatic lymph-nodes and the condition of the liver. In the absence of any other adequate cause it is necessary to conclude that the advanced chronic congestion of the liver was due to a compression of the hepatic vein from the enlarged lymph-node lying above and upon this vein.

The local cranial defects remain unexplained. If they had been found in the skull of a baby less than six or ten months old, they would certainly have been claimed as rhachitical. Craniotabes, however, after rhachitis gets well, seldom leaves behind any of these attenuated circumscribed spots. There was no symptom of rhachitis in the patient when an infant, except constipation. There was, moreover, no tumor, no thickening inside to explain a local absorption of such circumscribed character.

It has been noticed that the pia and surface of the brain exhibited marked alterations from the normal, but none so circumscribed as to explain the localized spasmodic symptoms constituting the very picture of what we mean by the term Jacksonian epilepsy. The advisability of an operation, undertaken to find and remove its local cause, was often considered by the medical men who studied the case. It was never urged by any one; it was advised against by some. Nothing that is positive can be learned from this feature of the case, except the necessity of care, and caution and prudence.

The bromides are sometimes required in such quantities as to interfere seriously with the general health of the patient. When the doses of urethan recommended by Dr. Dana were given persistently, the convulsive attacks ceased very soon, never to return, and there were no disagreeable symptoms attributed to the remedy.

Osler, William: Sporadic Cretinism in America. (*American Journal of the Medical Sciences.* 1897. Vol. cxiv. No. 4.)

1. *Incidence of the disease in America.* In 1893 the author made a collective investigation on the subject of sporadic cretinism in this country, and was able to find only eleven cases. Since that time the profession has learned to recognize the condition, and he now reports upon sixty cases, including those already referred to. The clinical summary of these cases is as follows:

Sex.—Males, 24; females, 36.

Age.—Under two years, 6; from two to five years, 12; five to ten years, 12; ten to fifteen years, 10; fifteen to twenty years, 7; twenty to thirty, 3; thirty to forty, 4; over forty years, 4.

Nationality.—American, white, 12; colored, 1; Polish, 2; French, 1; German, 5; Swede, 1; Hebrew, 1; Norwegian, 1; Irish, 7; English, 1; Swiss, 2; Bohemian, 1; nationality not given, 23.

Locality.—There is no region in the country in which the disease is endemic, nor does it appear to be more prevalent in those districts, as in Michigan and parts of Ontario, where goïtre is common.

Condition of the thyroid gland.—Goïtre was present in 7; gland stated to be normal in 12; gland small in 2; gland not to be felt in 16; no note in 20.

2. *The results of thyroid treatment.* No type of human transformation is more distressing to look at than an aggravated case of cretinism.

The stunted stature, the semi-bestial aspect, the blubber lips, *retroussé* nose, sunken at the root, the wide-open mouth, the lolling tongue, the small eyes, half closed with swollen lids, the stolid, expressionless face, the squat figure, the muddy, dry skin, combine to make the picture of what has been well termed the "pariah of nature."

Not the magic wand of Prospero, or the brave kiss of the daughter of Hippocrates ever effected such a change as that which we are now enabled to make in these unfortunate victims, doomed heretofore to live in hopeless imbecility, an unspeakable affliction to their parents and to their relatives. The changes which take place under treatment are considered at considerable length. Loss in weight due to disappearance of myxœdematous condition and the fat is noticed within a month or six weeks. The face becomes thinner, the puffiness about the eyes disappears. The projecting abdomen becomes smaller, and the child's figure becomes more shapely. The hair becomes finer and more abundant and the skin loses its roughness and yellow hue. The mental change is also marked improvement, usually being noticed within two months.

The author usually begins treatment with a grain of the desiccated gland three times a day in young cretins. Its effects should be carefully watched, and the amount reduced if the pulse becomes more rapid, or if there is fever. Older patients may take as much as five grains in the day, and the amount may be increased or diminished, as the symptoms indicate. Young patients bear the remedy very well, and in a few months, if no improvement is noted, larger doses must be tried. Unpleasant effects are less commonly seen than in the myxœdema of adults.

After the disappearance of the myxœdema and the establishment of the processes of growth and development, a very moderate dose seems sufficient, one or two five-grain tablets a week. Intermission for a month or six weeks does not seem to be followed by any striking change, but an intermission for a longer time is followed by symptoms indicating a relapse. In one case the treatment was interrupted for two months, and the child became very languid and apathetic, and improved at once when the use of the extract was renewed.

3. *Diagnosis.* The number of cases collected indicates that the profession has rapidly learned to recognize sporadic cretinism. It is also evident that there are a number of conditions which are apt to be mistaken, and that even men in institution life have not very clear ideas upon the subject.

The early slight cases are those upon which errors are most liable to be made. After the third year the condition is, as a rule, rapidly apparent. Diagnosis must be made from other types of idiocy, particularly the Mongul type. Deaf-mutism is not infrequently accompanied by sporadic cretinism. Fœtal rickets may be mistaken for cretinism and also the conditions of infantilism.

4. *The pathology of sporadic cretinism.* There are three groups of cases, as noted by Dr. W. Rushton Parker:

(*a*) With absence of the gland. The gland has not developed in fœtal life, or become completely wasted, so that at autopsy no trace of it is found. The child may be born a cretin, which is excessively rare. In a considerable number of the reports on sporadic cretinism, the thyroid is stated to be absent, but it is almost impossible to judge by palpation if the gland is very small. In one of Hilton Fagge's cases the gland was thought to be absent, but *post-mortem* there was thyroid gland of some size, with tumor.

(*b*) With atrophy of the gland. This is an important class of cases. The determination of the atrophy of the gland during life is very uncertain, as pointed out by Fagge. No trace of the gland may be felt, and yet *post-mortem* a well-marked, perhaps somewhat wasted, organ is found. In the recorded autopsies in sporadic cretinism atrophy has not heretofore been found.

(*c*) Sporadic cretinism with goïtre. Of the sixty cases collected in this country, seven had goïtre. Herein lies a very striking difference between the sporadic and the endemic cretinism. In the latter the percentage of goïtre in some statistics has been as high as 60 (Knapp). In Fletcher Beach's collected statistics of 116 sporadic cretins in different countries the thyroid is noted as "not felt" in 73; "felt" in 11, and enlarged in 7 cases. He states that of 16 *post-mortems*, of which he has been able to find an account, the thyroid gland was absent in 14 cases, and there was bronchocele in 2.

5. *The relations of sporadic to endemic cretinism.* When the "cretinoid state," to use Gull's expression, whether developing spontaneously, or following thyroidectomy became recognized as a direct result of the loss of the function of the thyroid gland, it was a simple matter to suggest that true cretinism, both sporadic and endemic, had the same origin. The generic term, cretinism, may indeed be used to cover these four allied states—endemic, sporadic, idiopathic of adults (myxœdema), and operative—following total excision of the gland. One and the same pathological basis exists in the entire group—*viz.*, loss or perversion of the function of the thyroid.

There are, of course, gaps in our knowledge, but the evidence at present available warrants, the author believes, the conclusion that the changes characteristic of cretinism, endemic as well as sporadic, result from *loss of function of the thyroid gland.*

Koplik, Henry: The Bacteriology of Pertussis. (*British Medical Journal.* 1897. No. 1920.)

The author believes that the bacteriology of pertussis may still be said to be a field comparatively little explored. The etiology of pertussis, as far as its parasitic nature is concerned has two distinct sets of investigators. First, there are those who, like Deichler, and most recently Karloff, have limited their work to a microscopical study of the sputum. Professor Karloff has very recently described a ciliated, protozoon-like body in the sputum of pertussis subjects. C. Deichler, a decade ago, described protozoon-like bodies in the sputum of pertussis cases. on the other hand, the modern bacteriological study of pertussis may be dated from the work of Afanassjew, who, in the sputum of whooping-cough, found a characteristic bacillus which has also been found by Szemetzchenko. Cohn and Neumann failed to find it after careful study of a number of pertussis cases, and came to the conclusion that this bacillus, if it were constant at all, was but an accidental saprophyte found also in the healthy sputum, and that the diplococcus forms, if any, were the most constant bacterial growth obtained from the sputum of pertussis patients. J. Ritter found that his studies all tended toward the constant presence of a diplococcus, which, however, is not the same as that described by Cohn and Neumann.

It will thus be seen that the recent data thus far obtained in the study of this disease, or rather the sputum, are confusing and divergent, though rather scanty. In this paper the author records some investigations conducted on the sputum of pertussis cases during the past year. In 13 cases out of 16 of pertussis examined in succession without any selection of material, there was the constant presence in numbers sufficient to give it a leading dignity as bacillus. This bacillus always grew either impure culture or in vast numbers slightly contaminated with various forms of diplococci or of diplococcus lanceolatus or streptococci.

The bacillus was found mostly in those cases uncomplicated with bronchitis or pneumonia. In the latter, the streptococci, or diplococci, or lanceolate coccus outgrew the bacillus on the cultures. It is possible that this accounts in part, as well as the specific medium used, for the fact that previous investigators following Afanassjew have failed to isolate this bacillus.

Afanassjew, and following him many writers, have had no difficulty in establishing in the sputum of pertussis patients, when stained on cover glasses in the ordinary manner with Loeffler alkaline blue, the almost constant presence of a small bacillus. The author saw this bacillus years ago, but was unable, for reasons enumerated, and the lack of a specifically favorable culture medium, to isolate this bacillus, unless it was present in almost pure culture. The contamination with bacteria of the ordinary sputum always prevented this. In the sputum, as stained in a crude state, these bacilli are seen not only in epithelial cells, but also free in the meshes of mucous threads; they are very delicate and short, and stain quite uniformly; they occur mostly in zooglœa. They are very constant in the sputum of cases which are uncomplicated by bronchitis or pneumonia. In these cases, then, they seem to be the only bacteria which occur, with the exception of isolated diplococcus forms and few streptococci. In sputum which is thick and tenacious, and is expectorated by those having a severe bronchitis or broncho-pneumonia with pertussis, the bacilli can also be readily found.

If the whitish pellets of the sputum are examined on cover glass, they are found to be made up almost exclusively of a tenacious mucus, in the meshes of which are seen vast numbers of these fine bacilli.

The bacillus grows quite luxuriantly anaërobic. It is motile. The bacillus described, when stained with Loeffler blue from a pure culture grown on hydrocele fluid, appears as a remarkably delicate short bacillus, thinner than the diphtheria bacillus, and not more than one-half to one-third its length. It measures 0.8 to 1.7 micromillimetres long, and is about 0.3 to 0.4 micromillimetres wide. In staining it has a finely dotted appearance, and in this respect resembles the diphtheria bacillus stain, but here the resemblance stops, for it is a much finer and shorter bacillus. Old hydrocele and agar growths show that this bacillus develops peculiar club-shaped extremities which stain more deeply with blue—in other words, involution forms like the well-known involution forms of the bacillus diphtheriæ, but in much more delicate fashion.

This bacillus was isolated by the author, therefore, in thirteen cases out of sixteen. Except in a few minor details which might easily be accounted for by differences in technique, it corresponded to that of Afanassjew. The author expresses himself as not prepared to positively fix the exact role of this bacillus. It can, however, be accorded the dignity as a leading microorganism in regard to numbers. Animal experiments are as yet unsatisfactory, as with the gonococcus, the human test alone could give us some definite data.

Rossolimo and Bouche: Vascular Neoplasms of the Cerebro-Spinal Pia Mater. (*Archives de Neurologie.* Vol. vi., No. 17.)

A boy nine years old presented the symptoms of cerebellar tumor for a year, having headache, vomiting, secondary atrophy of the optic nerves, epileptiform convulsions and paresis of the sixth and seventh pairs of cranial nerves.

At the autopsy an angio-sarcomatous infiltration of the spinal meninges was found, extending up to the medulla and cerebellum. The tissue of the spinal cord was unchanged, and the cerebellum was invaded at one point only (the inferior vermiform process) by an isolated nodule of the tumor.

Six similar cases have been reported. The authors are of the opinion that the condition develops during embryonic life, remaining unrecognized if it does not penetrate into the nerve tissue. In this case the neoplasm had the character of an ordinary infiltration, although it did propagate, in places, in the form of nodules.

Marfan: Tuberculosis of the Lungs and Bronchial Lymph-Nodes in a Child Four and One Half Years Old: Aceniform Eruption with a Tendency to Ulceration. (*La Médicine Infantile.* 1897. Vol. vii., No. 10.)

The child was well until attacked by varicella, followed immediately by measles. Cough and hectic fever persisted; two months later tuberculosis of the right apex and tracheobronchial adenopathy were found, together with a persistent eruption over the entire body, face and scalp. Marfan would classify the skin lesion with lichen scrofulosorum, as a dermatitis occurring in tubercular subjects, and due to toxines of the tubercle bacillus. The bacillus is not found in any portion of the skin lesion. The eruption may prove to be an aid in the early diagnosis of tuberculosis.

In the treatment of this case, three points were indicated: To feed the patient; to combat the tuberculosis with guaiacol; and to control the fever with fresh air and antipyrine.

Dallemagne and Tordens: Case of Hypertrophic Cirrhosis of the Liver, with Icterus. (*Journal de Clin. et de Thérap. Infantiles.* 1897. Vol. v., No. 17.)

The patient was a boy of nine, of good family and personal history. His illness began with gastric pain and vomiting, increasing in severity, and soon accompanied by fever, jaundice, and enlargement of the abdomen, both spleen and liver being increased in size. The disease lasted two years, when the child died of exhaustion, after repeated severe attacks of epistaxis. At the autopsy the liver weighed 650 grammes, had an irregular surface, yellowish green in color, and on section showed fibrous bands outlining islands of liver tissue one to three centimetres in diameter. The bile ducts were dilated. The abdominal cavity contained a small quantity of serum, and the spleen was somewhat hard.

When first seen, after six months of illness, the diagnosis of hypertrophic cirrhosis of the liver was made. Eighteen months later the liver had decreased in size, and a small quantity of fluid was present in the abdominal cavity. The late appearance of the ascites is to be explained by the late invasion of the branches of the portal vein by the connective tissue processes. The case was a mixed form of cirrhosis, clinical symptoms and anatomical appearances giving it the characteristics of both the atrophic and hypertrophic varieties.

Bourneville: Myxœdematous Idiocy. (*L' Echo Medical du Nord.* 1897. Vol. 1., No. *3*.

Two boys, aged respectively three and four years, were treated with thyroid extract for myxœdematous idiocy. A daily dose of one grain for one hundred and seventy days was followed by remarkable improvement. On suspending treatment the symptoms returned, but were again ameliorated after twenty-nine days of the medicine's use. The results obtained were as follows: Diminution of fatty infiltration and of tumefaction of the tongue, lips and eyelids; increase in height and diminution in body weight; regular development of the bones of the cranium; and finally, marked intellectual improvement, the children becoming bright, attentive and affectionate.

Examination of the blood during the treatment showed that it brought about an increase in the per cent. of hæmoglobin and in the number of red cells, which also became normal in size. No marked changes in the white blood cells were noticed.

Campbell, Don M.: Deafness in Childhood. (*The Physician and Surgeon.* 1897. Vol. xix., No. 2.)

The causes which lead to deafness in childhood the author asserts may be conveniently considered under three heads.

1. Congenital defects, or affections of the internal ear or

auditory nerve occurring in the course of cerebro-spinal meningitis or other intra-cranial diseases.

In these cases we usually have a complete and permanent abolition of the function of the ear, leading to deaf-mutism. Being permanent and entirely unaffected by treatment they need not be further considered here.

2. Acute and chronic suppurative otitis media.

This class of cases is not now neglected as it formerly was, and the saying that it will not do to check the discharges from a suppurating ear because it would be determined to some other organ, as was said by the laity, or that a discharging ear acts as a safety valve, as has been said by the profession, is now a relic of the past. In consequence of increased knowledge on the part of the average medical man, we are seeing fewer and fewer of these intractable, disgusting, and dangerous cases of chronic suppurative otitis media, with their foul smelling discharge. Yet these cases are seen still, and are often the logical outcome of neglected pathologic processes beginning during childhood.

3. Acute and chronic catarrhal otitis media.

By this term is meant those cases characterized by a low form of catarrhal inflammation affecting the mucous membrane lining, the Eustachian tube, and tympanic cavity, being complicated by, and having its origin from, a similar inflammatory action going on in the nasal, naso-pharyngeal, and pharyngeal mucous membrane.

In all of these cases two features are recognized as producing the diminution of the hearing and the changes which finally make that diminution a permanent thing, namely: (1) The extension of the inflammation and thickening into the mucous membrane lining the tympanic cavity, and (2) the obstruction to the function of the Eustachian tubes, in consequence of which the conducting apparatus is immobilized and finally made permanently so.

HYGIENE AND THERAPEUTICS.

Huddleston, J. H.: The Composition of Cream and a Consideration of the Desirability of Establishing a Standard. (*Medical Record.* 1897. Vol. lii., No. 11.)

This is a most timely and scientific discussion of a subject upon which little is known by the profession, and upon which little has been written. The cream of which the author writes is that furnished in New York City. According to its method of manufacture it is divided into two classes: gravity, *i. e.*, hand-skimmed, or "Cooley" cream, and machine or separator cream. The proportion of machine cream to the gravity is said to be about ten to one.

The gravity cream, which is almost entirely taken by the ice cream makers, restaurants, and hotels, varies in fat content, although the great bulk of it ranges from 12 to 16 per cent. It is usually raised by gravity in "Cooley" cans, which have a faucet at the bottom by which the lower part of the contents can be drawn off without disturbing the upper; these are submerged in cold water for about twenty-four hours and then skimmed by drawing off the milk below the cream. The cream thus collected does not keep well and there is said to be frequently added, therefore, a composition of borax and salicylic acid, called "Preservitas."

The machine cream is separated from the milk by the use of some one of the centrifugal separators. It can be made very quickly, and therefore does not need the twenty-four hours practically necessary for gravity cream. It can usually be delivered in from twenty-four to thirty-six hours from the cow, but, as it keeps well, it is frequently not shipped, in winter at least, for ten days or two weeks, and sometimes for even longer. Most cream delivered in New York is at least seventy-two hours old before it reaches the city. If there happens to be a surplus, the extra cream is kept buried in ice for days. Certain dairies, however, send their cream to the city in bottles filled and sealed while the cream is fresh.

The factors necessary for the production of cream of definite fat contents are a skilled dairyman, an efficient separator, milk of uniform composition (to obtain this the day's milk supply must be put in a vat, thoroughly mixed, and its composition tested), and a Babcock tester for the rapid determination of the amount of fat. This last instrument is in brief a centrifugal apparatus containing a bottle in which the cream to be tested is placed, together with sufficient sulphuric acid to set free the entire fat content. In less than ten minutes the fat can be all brought into the long neck of the bottle and its total amount read on an attached scale.

Cream thickens with age, and it is therefore a very frequent practice, especially in cold weather, to hold back cream from delivery for several days that it may appear richer. This increase in thickness of the cream is due to bacterial growth.

Milk experts have for some time advocated the sale of both milk and cream on the basis of the fat content; then a three per cent. milk, for example, would have a certain price, a three and one-half per cent. a higher price, a four per cent. still higher; while there might well be grades of milk fortified by addition of cream which should be 6 per cent., 7 per cent., and so on. Then every person selling milk at retail should be compelled by law to place in conspicuous figures on each can or vessel, in or from which milk is sold, the percentage of fat in the milk; he should be required to guarantee this, and be prosecuted if an examination showed the milk to be below the guarantee. Purchase of milk and cream on this basis of fat content is actually carried out at the present time in many cheese factories and creameries.

The main propositions of this paper are, in brief:

1. Cream in this city is at present milk containing an amount of fat greater than 5 or 6 per cent.
2. Cream containing any desired percentage of fat could be regularly furnished without material increase in cost.
3. Cream is now usually old when it reaches the consumer.
4. Cream as fresh as milk could be furnished the consumer.
5. Cream is now usually so laden with spore-bearing germs at delivery that Pasteurization is to a great extent ineffectual.
6. Cream could be Pasteurized while fresh at the dairy at little cost.
7. An easy means of securing a supply of cream of known composition, age, and bacterial condition would be certification by a responsible body.

White, J. S.: Cretinism Treated by Desiccated Thyroids. (*The Medical Age.* 1897. Vol. xv., No. 9.)

Esther K. came to the author in September, 1894. She was seven years of age, twenty-seven and a half inches tall, weighed twenty-five pounds. Had never walked or talked; would sit for hours at a time and never move. Lips very large; mouth always open, tongue very thick and wide, too large for the mouth and protruded about one inch; upper incisor teeth all decayed; hair very long, dry, and so brittle as to break easily. On arms and legs fat lay in rings and folds; legs much bowed;

very long ventral hernia extending about two inches above and below umbilicus. Manifestly there was general arrest of development.

About September 15, 1894, the author began treatment with dessicated thyroids, giving three-fourths of a grain three times daily. He was surprised at the phenomenon manifested, for at the end of the first week she had apparently retrograded and could not sit up alone. The family now desired to cease treatment, but he insisted on continuing the thyroid, and they finally yielded.

Two weeks later the child was walking; the heavy cheeks, thick lips and over-large tongue were manifestly getting smaller. At the end of a month the nose and lips were like those of a normal child, and her height had been increased to twenty-eight inches. At this time the skin was all peeling off, which it did completely, and the hair from the head and eyebrows came out so that she was left completely hairless. He still continued the desiccated thyroid. On December 15th, her height was twenty-nine and a half inches. On January 26, 1895, her height was thirty-two inches; March 2d, thirty-three inches; May 17th, thirty-four inches; July 16th, thirty-five and a half inches.

One week of each month the thyroid treatment is given, and the child is doing well; is bright, plays, runs and talks as other children of her age.

Cutler, Eldridge G.: The Treatment of Anæmic Dypepsias in Children. (*Boston Medical and Surgical Journal.* 1897. Vol. cxxxvii., No. 11.)

In a paper on the subject of gastric dyspepsia, the author, in speaking of treatment, advises the use of ferratin to increase the hæmoglobin. In examining the patient, the relation or dependence of dyspeptic conditions on other local diseases or general disturbances should be sought and found. The lungs and the urine should be examined; the hæmoglobin should be examined weekly, and the patient weighed. If diet and control of daily life do not increase the hæmoglobin, then ferratin should be used to aid the other measures.

Channier: Orphal (Betanaphthol Bismuth) as an Intestinal Antiseptic. (*Jahrbuch für Kinderheilkunde.* B. xliv., H. 3, 4.)

This drug has been employed by the author in the diarrhœa of adults and children, in the diarrhœa of phthisis and in the diarrhœa of typhoid fever.

The remedy was given in various forms of infantile diarrhœa and always with prompt curative effects. In some, the diet was corrected. In others, no change was made. In a few cases ¼ to ½ of tincture of opium was given with the powder.

In cholera infantum, and in diarrhœa with frequent vomiting, egg water alone furnishes the nourishment. Under the use of orphal, two to five grammes daily, the stools lost their fœtid character. The thin ones became thicker, and the green ones lost their color. The diarrhœa disappeared in the majority in two or three days. The drug is best given in thick barley water. The taste is not disagreeable.

Rosenthal, Edwin: The Use of Antitoxin in Laryngeal Diphtheria. (*Virginia Semi-monthly.* 1897. Vol. ii., No. 7.)

The author reports the number of cases treated during the year preceding the writing of the paper. There were 48 of these cases, of which 7 died; mortality, 14 5-10 per cent. Of these, 25 were not intubated; 1 died, mortality, 4 per cent.; 23 were intubated, of which 6 died; mortality, 26 per cent. The latter mortality rate is similar to that shown by the collective investigations. Most of these cases were seen in consultation and the author was only called when intubation was urgently required, which explains why the proportion of operative cases is so large.

Twenty-seven cases were under three years of age. The time of wearing the tube varied between 27 and 576 hours, the average time being 128¼ hours. Mulford's concentrated antitoxin was used in all the cases.

SURGERY.

Stowell, William L.: A Case of Hydræmia, Hæmatoma and Sepsis, with Recovery. (*New York Medical Journal.* 1897. Vol. lxvi., No. 3.)

The author reports the following unusual case of hemorrhagic diathesis, in an extremely anæmic child with the formation of hæmatoma simulating abscess:

The boy, George N., was fourteen years old, of usual stature and activity, but quite spare. No abnormal pulmonary signs were found. He was very pale, especially after nose bleeds, to which he was subject.

On December 30th, while throwing a snowball, the boy slipped and fell on the pavement, striking on the left buttock. He was a little lame, but made no complaint until January 3d, when he had much pain, tension, and swelling over the left hip. There was redness and no motion. The limb appeared longer than its fellow. The boy was extremely anæmic, but as he had had a violent nose bleed the previous day not much was thought of this symptom. Poultices relieved the pain of the hip, but as the temperature had mounted to 104° it seemed best to open the limb. Prof. J. D. Bryant was called in consultation, and an opening made half an inch long, two inches below the trochanter, where there appeared to be fluctuation. Neither blood nor pus flowed, except blood from the cut skin. The wound was bathed with hydrogen peroxide, and aseptic dressings were applied.

A few hours later the author was summoned, as the wound was oozing a little thin blood. After again cleansing the wound he applied styptic cotton and tight bandages. During the night he was again called, as the boy was nearly exsanguinated. The oozing from the edges of the little cut was nearly as thin as water, and little red streaks of red cells could be seen flowing in it. There was not the least attempt at coagulation, nor did the blood have the viscid feel it usually does.

As persulphate of iron and the usual styptics were found valueless, the wound was filled with dry iron powder, a thin piece of wood applied over this and held by rubber adhesive plaster, and the entire lot sealed with collodion.

On the following morning the temperature was 104°, but fell in the afternoon to 101°. During the next twelve days the temperature fluctuated between 101° and 102.5°. There was stupor with sweating, tongue moist some days and dry others; in short, the boy was in a somewhat septic state.

For fear the patient would "ooze to death," not to say bleed, the dressing was left untouched for a week. When it was removed a very little thick blood flowed out. It was now certain that the tumor had been caused by a hemorrhage into the soft tissues. The pain and temperature led to the diagnosis of suppuration, but no pus really appeared until February 1st. From that time more or less pus came with the softening blood, sometimes one predominated, and sometimes the other. On February 7th the patient was sitting up and feeling well. On February 20th the discharge ceased, he had a chill, and his temperature was 104.5°. A new swelling had been forming in the middle of the thigh for many days. After a week of high temperature this made an opening, and bloody fluid escaped as in the primary hæmatoma. The temperature fell nearly to normal. The reason for the last hæmatoma was not apparent. There was no known injury, and the slow development and final breaking down were not like those of an ordinary cellulitis.

The treatment was symptomatic and nutritive. When the temperature was 103° or more, acetanilide was given in doses of three grains. The boy said it made him feel good, and he always could distinguish it from other powders administered for sleeplessness. Albuminate of iron was given to improve the character of the blood cells, but as improvement was not marked, and as there was evidently a great lack of blood-cells as well as hæmoglobin, he was given hæmaboloids, a preparation of nucleo-albumins and bone marrow. Theoretically, this was just what he needed. Practically, he gained in color, weight, and good spirits. The use of this preparation was continued several weeks, and supplemented the beef and eggs which he was urged to eat. During March he grew stronger, and by the middle of May returned to school, having his usual weight and color, though the knee remained slightly stiff and the thigh weak.

Dunham, Theodore; The Operation for Hare-Lip. (*The Post-Graduate.* 1897. Vol. xii., No. 10.)

In a healthy child the author thinks the operation can hardly be performed too early in life. If there is no complicating cleft of the palate, a successful operation for hare-lip will enable the child to take the breast, while without the operation it would have to be fed by spoon or medicine dropper. After a successful operation, the air in respiration will pass through the nostrils as it physiologically should, and the inspired air will be more fit to enter the lungs. If operation is delayed, many infants rapidly become puny and less able to run the gauntlet of the operation. For these reasons he believes in most cases an early operation is indicated, and that the first week of life is a favorable time.

He is emphatically opposed to the operation on cleft-palate babies. There are many contraindications. It is a lengthy operation, with much loss of blood, even when performed by the most skilful. There is consequently much shock, much depletion, and great liability to gastro-enteric disturbance from swallowed blood. It is hardly ever to be hoped that the restoration of the parts will be so mechanically and functionally perfect as to enable the patient to produce a vaccum in the mouth and pharynx, and so be capable of nursing. There is no immediate benefit to be hoped for from this exceedingly grave operation, and, therefore, it should be deferred till late in life, if attempted at all.

The three greatest dangers of operation for hare-lip are: First, hemorrhage, which is likely to be great if the operation is not well managed; second, shock from too prolonged an operation; third, subsequent gastro-intestinal disturbance from the swallowing of blood.

If we diminish hemorrhage we diminish two dangers: Loss of blood and gastro-intestinal disturbance. The way to achieve this is to arrange the order of procedure so that recent surfaces shall be left as short a time as possible without compression. To accomplish this, and also reduce the length of the operation to a minimum, the procedure should be so ordered that recent surfaces requiring compression may be under pressure to staunch hemorrhage while other work is in progress; then no time will be lost. The importance of having the operation carefully and exactly planned beforehand goes without saying.

Delore: A Case of Neuro-Fibromatosis. (*Journal de Clin. et de Thérap. Infantiles.* 1897. Vol. v., No. 16.)

The child was eleven years old, and had congenital pigmented nævi and a hairy nævus on the left thigh. At the age of five, cutaneous tumors appeared. One of these, in the sixth left intercostal space, was operated upon and found to be a flexiform neuroma of the intercostal nerve.

The disease is congenital, of ectodermal origin, and in the prognosis the possibility of sarcomatous degeneration must be considered.

Verstraete: Peripharyngeal Abscesses. (*Gaz. Méd. de Paris.* 1897. Vol. lxviii., No. 10.)

From five cases observed the author concludes that peripharyngeal abscesses are common in children between ten and fifteen months, more so among girls than boys; all the cases were on the left side of the neck; but one was preceded by scarlatina. The abscesses develop slowly, lasting from eighteen to twenty-four days; the urgent symptoms requiring immediate intervention rarely appear before the fifteenth day.

One case underwent resolution; probably many cases which are never diagnosticated take this favorable course. Another opened spontaneously, and three needed incision through the mouth. Of the latter, two recovered; one succumbed to a relapse after twelve days. The immediate improvement after operation is always very marked.

Malapert: Generalized Purulent Peritonitis; Laparotomy, Recovery. (*Gaz. Méd. Paris.* Vol. lxviii., No. 12.)

A girl nine and one-half years old developed purulent peritonitis following a fall. Laparotomy was performed one month later, three litres of pus being removed. The bladder was adherent to the adominal wall, and was opened by the first incision, but quickly sutured. The cul-de-sac of Douglas having been found full of pus, it was tamponed, and both iliac fossæ were drained after thorough irrigation. The bladder wound healed by first intention, and recovery was complete in sixteen days.

The nature of the process remains obscure, as the pus was not stained for tubercle bacilli, but the case would seem to be tuberculous rather than idiopathic in origin.

Heidenham: Death of a Fourteen Year Old Boy Due to Lympho-Sarcoma. (*Jahrbuch f. Kinderheilkunde,* B. xliv., H. iii., iv.)

The patient had suffered with asthma for some time when he was suddenly taken with a severe attack of dyspnœa. Tracheotomy gave some relief, but the patient died in six hours, apparently from paralysis of the heart.

The autopsy revealed a tumor directly over the trachea, extending well up to the larynx. The tumor, which proved to be a lympho-sarcoma, was twelve cm. long and seven cm. wide.

Winceuroff: Sarcoma in Children with Report of a Case of Multiple Sarcoma in a Boy Twelve Years Old. (*Archives f. Kinderheilkunde,* B. xxi., H. i., iii.)

It is difficult to determine the relative frequency of malignant growths as occurring in children and adults. Many cases in adults are never reported, while we are very apt to hear of all the cases which occur in childhood.

As regards frequency of malignant diseases in the young—Drs. Espine and Picot found among 427 cases, 77 under one year of age, 39 between one and two years, 50 between two and three years, 48 between three and four years. The organs most frequently involved are the kidneys and testicles. The kidneys were involved in 136 of the 427 cases, the majority of which were under four years of age.

The eyes and the bones are also frequently involved. Boys are affected more frequently than girls.

Sarcoma represents the most frequent form of malignant growth in children; 243 or 57 per cent. of the above number had sarcoma. In the majority the heredity could not be proven.

The course of the disease is oftentimes very rapid. Chanveau reports a case which died twenty-four days after the appearance of the tumor. The growth may remain latent for a long time, thus making the diagnosis very difficult, particularly when the internal organs are involved.

In the case reported, a boy twelve years old, there was found upon autopsy an involvement of the pancreas, pericardium, liver, kidney, peritoneum, and lymphatic glands. The disease ran its course in five weeks. The temperature during the entire illness was subnormal. Ebstein, 1887, first called attention to this symptom of malignant disease in children.

Farquhar, Curtis B.: Anæsthesia for Children. (*Post-Graduate*. 1897. Vol. xii., No. 10.)

As children are not very sensitive to pain, and can easily be held still, the amount of the anæsthetic used may be much less in proportion than in the adult. But really severe pain will cause the pulse to fail, and care must be taken not to be too sparing of the anæsthetic in such cases. The choice of anæsthetic is not important except where it is probable that a bronchitis such as is apt to follow ether would be exceptionally dangerous, in which case chloroform is preferable. Chloroform is excellent for cases where short or slight anæsthesia is desired, and also when the large ether cone is in the way and complete exclusion of air is difficult because the operation is performed on the mouth or nose, as chloroform can be given on a small cloth and does not require exclusion of air. Ether is, however, the anæsthetic in general use, and we have only occasionally found it objectionable.

Caverly, S. C.: Three Cases of the Cretinoid Condition in the Same Family Treated with Thyroid Extract. (*Medical Record.* 1897. Vol. li., No. 15.)

The three cases reported seem noteworthy, because the patients are brothers and sister. The two older are marked cretins, Eddie, the younger of the two, being quite a typical case, while the baby has the cretinoid tendency well marked, and would undoubtedly in time become as decidedly cretinoid as the older children. These cases came under the author's observation during the latter part of April last. This was the family history elicited:

Mrs. R—— (the mother) is thirty-five years old; born near Dublin, Ireland; reared in Scotland. Her father and mother are both dead, the former by an accident, the latter of kidney trouble. Five brothers died in infancy, the cause of their deaths being unknown. One brother living has been an inmate of an insane asylum. She is a large, fleshy woman, somewhat inferior intellectually, and gives no history of any injury or unusual illness during her pregnancies, or at other times. Her labors have always been normal.

Mr. R—— (the father), thirty-five years old, was also born near Dublin, Ireland. His father and mother are both living and healthy. One healthy brother is living. He is a temperate, hardy-appearing man, and is so reported by his employer, for whom he has worked as gardener for seven years.

These parents know of no case of cretinism or of goïtre in their native place in Ireland. They have lived in Vermont about fifteen years. Their family consists of these children, all apparently healthy and normal at birth: Thomas, eleven years, a normal boy; James, nine years eleven months, a cretin; Eddie, eight years three months, a cretin; Michael, seven years, a normal boy; Willie, five years, a normal boy; Elizabeth, one year four months, cretinoid.

The children were at once put upon the thyroid treatment. At first they were given the dry powder of Parke, Davis & Co. The initial dose was one grain daily, and this was regularly increased to ten grains daily in the cases of the boys, and to five grains daily in the case of the baby.

Eddie, whose cretinoid condition was most marked, bore the treatment best. It produced some excitement in all at first, and their faces would become flushed after taking it. James had wakeful nights, derangement of the stomach, swollen glands in the neck during the early part of the treatment, though it was doubtful whether these symptoms all depended upon the thyroid. The boys' mouths were sore, but the decayed milk teeth seemed at least partially responsible for this. After two months the thyroid preparation was changed to five-grain tablets of Fairchild Bros. & Foster. The baby cut her first teeth in August. She had a severe attack of gastro-intestinal disturbance also during this month, beginning with a series of convulsions. She was taking five grains of the thyroid daily at this time, which was decreased for a time.

The first and most notable effect of the treatment in all these cases was an improvement in the circulation, the temperature becoming quite normal, their extremities warm and the skin of a more natural color. The next effect noticed was a steady loss of flesh, which was very noticeable. They soon began to use their limbs, and the boys walked within two months. Their minds did not keep pace with their bodies, but they learned such words as "mamma," "horse," "chair," etc. It was evident, too, that they attached correct meaning to these words. The baby became more diffident, and acted more like a normal child of a year and a half. The boys made good use of their legs in running away and otherwise taxing the patience of the parents.

Cases of cretinism, however, are being reported with increasing frequency in recent pediatric literature in this country. Yet these reports do not come from any one locality. They are from Massachusetts, Pennsylvania, Ohio, New York, and Maryland. Dr. G. W. Crary says sporadic cretinism is not rare; it occurs in all parts of the United States. The latter part of his statement, at least, would seem to be true.

The cases here reported, occurring as they do in one family, point quite strongly to some hereditary taint. The author is suspicious that this came from the mother's side. He offers no facts, however, to substantiate this suspicion, further than those brought out in her history. While, then, isolated or sporadic cretinism does not seem to be very rare in this country, the combination of three cases in a single family is unique.

American Pediatric Society.

TENTH ANNUAL MEETING.

Cincinnati, May, 1898.

OFFICERS.

President,	L. EMMETT HOLT, M.D.
First Vice-President,	HENRY KOPLIK, M.D.
Second Vice-President,	CHARLES G. JENNINGS, M.D.
Secretary,	SAMUEL S. ADAMS, M.D.
Treasurer,	FREDERICK A. PACKARD, M.D.
Recorder and Editor,	FLOYD M. CRANDALL, M.D.

COUNCIL.

WM. D. BOOKER, *Chairman.*

T. M. ROTCH,
J. P. CROZER GRIFFITH,
B. K. RACHFORD,
A. D. BLACKADER,
WM. OSLER,
C. P. PUTNAM.

The Committee for the Collective Investigation of Infantile Scurvy, appointed at the last meeting, requests reports of cases of this disease, whether previously published or not. Blanks have been prepared and will be sent to any one applying to members of the Committee. Full credit will be given, and no case will be used in such a way as to interfere with subsequent publication by the observer. The final report of the investigation will be sent to those furnishing cases.

Returns must be received by April 1, 1898.

COMMITTEE.

J. P. CROZER GRIFFITH, M.D., *Chairman*, 123 S. 18th St., Phila.
WILLIAM D. BOOKER, M.D., 853 Park Ave., Baltimore.
CHARLES G. JENNINGS, M.D., 457 Jefferson Ave., Detroit.
AUGUSTUS CAILLÉ, 753 Madison Ave., New York City.
JOHN LOVETT MORSE, M.D., 317 Marlborough St., Boston.

ARCHIVES OF PEDIATRICS.

VOL. XV.] FEBRUARY, 1898. [No. 2.

Original Communications.

A REPORT OF FIVE CASES OF ABSCESS OF THE BRAIN IN INFANTS, TOGETHER WITH A SUMMARY OF TWENTY-SEVEN COLLECTED CASES, IN INFANTS AND VERY YOUNG CHILDREN.*

BY L. EMMETT HOLT, M.D.,
New York.

The literature of cerebral abscess in infancy and early childhood is very meagre. How rare this condition is may be judged from the fact that in a collection of ninety cases of abscess of the brain in 1867, Meyer found only three under ten years of age; in a collection of seventeen cases in children under fifteen, by Wyss in 1871, only four were under five years, two of these being in infants under one year. This is quite remarkable, since the two most potent causes of abscess, traumatism and otitis, are both so frequent during the first five years of life.

The cases reported thus far have many of them been with very imperfect clinical histories, so imperfect, in fact, as often to throw little light upon the course of the disease at this early age. After five years, cases of brain abscess are not infrequent, and as a rule, the course resembles that seen in older children and early adult life. Four of the cases here reported came under observation in the Babies' Hospital in a single year, and two of them were under observation long enough to give an opportunity for careful study and record. It is the purpose of the present paper to furnish, together with a report of the cases mentioned, a collection of all that could be found in literature in children under five years; not, however, including any of five or over.

CASE I.—*An abscess in the left parietal lobe containing two ounces of pus, with latent symptoms.*

A female child, six weeks old, was admitted to the Hospital, March 17, 1897. The history given was that the child was born after an easy, uncomplicated labor; that there had been no ophthalmia; no umbilical inflammation, and no traumatism. The infant was said always to have been well and healthy, and nothing abnormal had been noticed until four days previously, when swelling at the lower part of the left thigh was observed. The parents were not very intelligent, and no other facts could be ascertained.

---

* Read before the American Pediatric Society, Washington, May 5, 1897.

The child was admitted at night and no careful record was made of her general symptoms. She was well nourished, but very pale and greatly prostrated; pulse very feeble; temperature 99.5°; there was no coma. The only thing about the patient which attracted particular attention was, in addition to the great prostration, a swelling at the lower portion of the left thigh. This was quite prominent, and at its inner surface was an area of fluctuation. An erysipelatous blush surrounded the knee and extended up the thigh to the groin.

The child was seen shortly after by Dr. A. L. Fisk, Surgeon to the Hospital, who laid open the thigh. He found no pus, but only a mass of disorganized blood and lacerated tissues. The thigh was thoroughly irrigated, and the wound drained and closed. No improvement followed the operation; the temperature remained slightly elevated, and the blush extended rapidly upward until it reached the navel. The child grew gradually worse and died the following morning, eighteen hours after admission.

AUTOPSY.—*Brain:* The convolutions of the left side were much flattened. The brain generally was firm, but quite pale, except over the medulla and pons, which were congested. No adhesions between the dura and skull, or between the dura and pia. There was a localized meningitis over the left hemisphere in the parietal region, extending somewhat on to the occipital and temporo-sphenoidal lobes. The pia was infiltrated with pus and fibrin in places, but the exudation was nowhere abundant. Occupying chiefly the left parietal lobe was an abscess cavity (Fig. 1) measuring 7 c.m. by 5 c.m., and containing two ounces of thick, yellow, odorless pus. Its external wall was very thin, being scarcely two millimetres in thickness. In front the abscess was bounded by the ascending frontal, and behind by the anterior occipital convolution. The abscess wall was sharply limited, but showed no well-defined lining membrane.

The sac communicated with the left lateral ventricle, which, however, was not filled with pus.

The temporal bone on both sides was opened, and thin, yellow pus was found in both middle ears, but much more upon the left side. (No discharge during life.)

On laying open the left thigh there was found a transverse laceration of the quadriceps muscle, just above the knee joint, with very extensive extravasation. The articular surfaces of the femur, fibula and tibia were reddened, and the cartilages slightly softened. There was some bloody effusion into the knee joint.

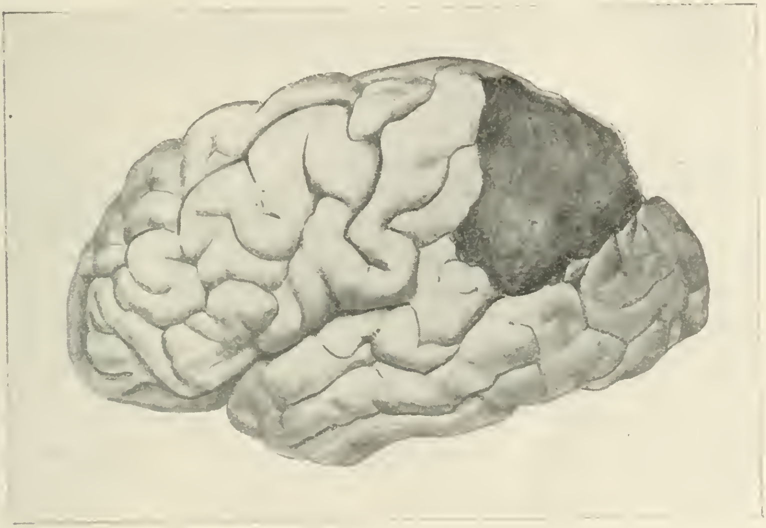


Fig. 1. ABSCESS OF PARIETAL LOBE IN A CHILD SIX WEEKS OLD. (Case I.)

There was no fracture and the epiphysis was not separated. The other organs showed nothing of importance

A bacteriological examination was made with the following result:

The heart's blood, liver, left knee, thigh wound and abscess cavity of the brain all contained the streptococcus and staphylococcus pyogenes. The spleen and kidneys contained the streptococcus in pure culture. The culture from the right ear was contaminated; that from the left ear contained the streptococcus.

The finding of an abscess in this case was entirely unexpected, for there was nothing in the history or the symptoms to point to any serious brain lesion. Although carefully questioned, the parents positively stated that the child had appeared well until four days before admission. The condition found in the left thigh could only have resulted from traumatism, although no history of it could be obtained. It is not easy to state what the order of development of the different lesions was, but it seems most probable that the brain became infected from the ear, and that the thigh was a later condition infected from the brain or from the ear. The absence of pus from the lacerated thigh tissues, and the large collection in the brain, make it highly improbable that the thigh lesion was the primary one.

CASE II.—*Abscess of both parieto-occipital lobes and the cerebellum; pus in all the ventricles of the brain.*

L. K., a female child, three months old, was admitted to the Hospital, November 19, 1896. The family history was negative. One child had died at eight months of some brain disease after two days' illness; one, of measles, and one of pneumonia. The patient was the only child living and had always been breast-fed. The mother was a Russian, and very little that was definite could be learned regarding the present illness, except that the child had been apparently well until three days before, since which time fever had been present.

The examination on admission showed a plump, well-nourished infant; length, 23 inches; weight, 10 pounds, 1½ ounces; sutures still open; eyes, ears, nose and throat normal; scalp covered with seborrhœic eczema; tongue slightly coated; respirations shallow and irregular, almost Cheyne-Stokes; abdomen retracted; no rigidity of the extremities; no strabismus, drowsiness, paralysis, or stupor; liver, spleen, lungs, heart, normal. The temperature was 99° F., but rose the same afternoon to 102° F.

November 24th. The child has not done well; there has been continued fever and a loss of half a pound in weight. The child has vomited once or twice; takes food poorly. The pulse is strong and regular; there is slight cervical opisthotonos; fontanel not bulging. Unless disturbed, the child lies quietly all the time. No new nervous symptoms have developed since admission.

December 8th. There have been very few changes during the last week. The fever has continued, ranging from 99° to

101° F. She has lost ground steadily, the weight having dropped to eight pounds and a half. The bowels move regularly and the stools are well digested. Once in two or three days there has been vomiting. The lungs are still negative. There is now present quite a marked degree of opisthotonos, and the abdomen is retracted. The pulse is rapid but regular. The child is quiet, but there is no stupor.

December 10th. The opisthotonos is constant and is becoming more marked. There is a convergent strabismus which is not constant. The pupils are regular and respond normally: a slight nystagmus noticed to-day for the first time. The abdomen is still retracted; hands quite firmly clinched; no general rigidity; many rales in the right lung behind.

December 12th. There is now distinct bulging of the fontanel; pupils are still normal: the mental symptoms have not increased; there is no stupor.

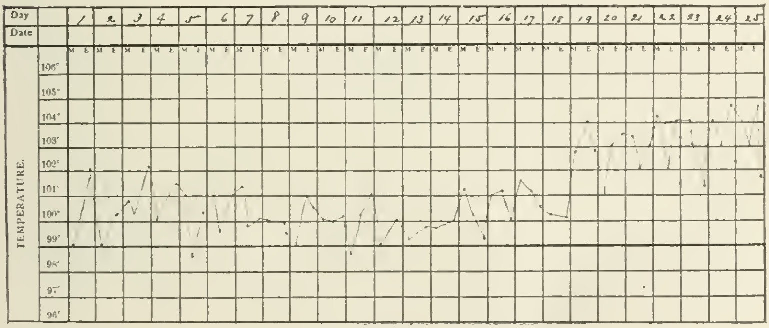


Fig. 2. TEMPERATURE RANGE IN CASE II.

December 13th. There is marked rigidity of the arms and hands, and moderate rigidity of the legs: also very marked nystagmus; general convulsive movements occurred to-day. The pulse is rapid, slightly irregular, at times intermittent. Respiration continues very irregular, almost typically Cheyne-Stokes. The abdomen is not now retracted; there is drowsiness, but no coma. The child vomited three times during the day and died quietly of exhaustion at 10 P.M., having been under observation exactly twenty-five days.

The marked symptoms were the constant fever (see chart) which, during the last week, was high: continued irregularity of respiration and cervical opisthotonos, but with no other constant nervous symptoms; nystagmus, rigidity, retraction of the abdomen and vomiting,—all being only slightly marked and not constant. The case appeared like an irregular type of meningitis.

AUTOPSY.—On removing the brain from the cranium, 100 c.c. of bloody cerebro-spinal fluid escaped. There was observed a distinct bulging of the right parietal lobe, on opening which there was found a considerable quantity of green, viscid pus. This abscess cavity was found to communicate freely with the right lateral ventricle: and both lateral ventricles, as well as the third and fourth, were dilated and filled with pus. The abscess had broken across the mid-brain, and all parts about were considerably softened. On the inner side of the left hemisphere (Fig 3) a similar collection of pus was seen to that upon the right side, but it was more deeply situated. The cerebellum was softened, especially on its inferior surface, and was infiltrated with pus cells, as the microscope showed. There were nowhere any marked evidences of meningitis, although the pia over the parietal and occipital lobes was much congested.

The sinuses were normal; a recent non-adherent thrombus of a dark red color was found in the lateral sinus.

The petrous portion of the temporal bone was opened on both sides, the right being found normal; but on the left side a collection of pale green pus was found in the internal auditory canal. (No discharge noticed during life.)

The spinal cord was not examined. There was a moderate amount of hypostatic pneumonia, and an extremely fatty liver, but nothing of importance in any of the other organs.

Cultures were made from the pus on the surface of the cerebellum, from the lateral ventricles, from the middle ear; and all showed a growth of a diplococcus, and a short, plump, motile bacillus. The former was identified as the pneumococcus, and the latter as the bacillus coli commune. The same was found in the lung.

The long period of observation made it possible for many examinations of this child to be made, and she was seen by several members of the Hospital staff. The case was regarded during life as one of meningitis of an irregular type, and in the absence of definite focal symptoms, it does not seem possible for a differential diagnosis to have been made. The source of infection seems pretty clearly to have been the ears.

CASE III.—*Superficial abscess of the cerebellum ; diffuse purulent meningitis.*

P. F., male, five months, admitted to the hospital, October 5, 1896, thirty-six hours before death. The family history was negative; the child was reported to have been well and strong until seven weeks before when it was said he fell from the bed to the floor. How he struck could not be ascertained as not much attention was paid to this, and nothing of importance was observed until three days later when he was suddenly taken with sharp piercing cries and vomited several times. From that time he had not been well; had steadily lost flesh; there had been frequent attacks of trembling and muscular twitching, but no general convulsions. No other details that were reliable could be obtained.

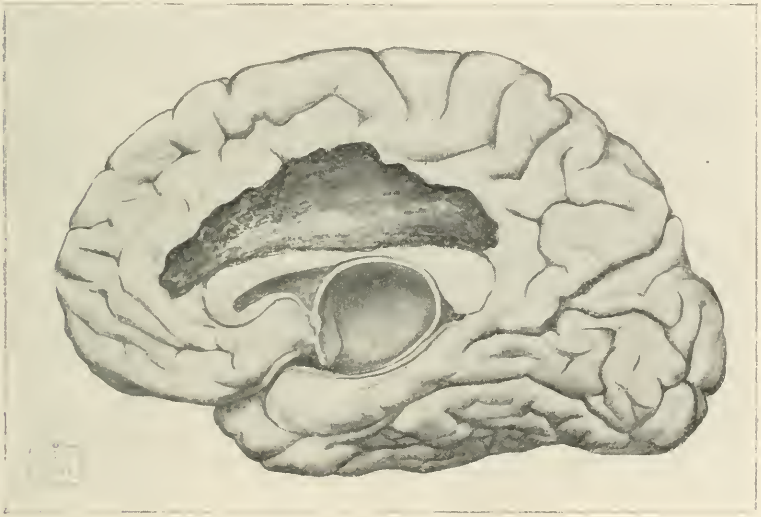


Fig. 3. ABSCESS ON INNER SURFACE OF RIGHT HEMISPHERE. (Case II.)

On admission the child was much emaciated and was in quite a deep stupor. There was no apparent paralysis, but a general spastic condition of the muscles of all the extremities; the neck was stiff, the head drawn back in opisthotonos; the hands were tightly clinched; the abdomen retracted; the pupils responded very sluggishly to light and, by tests, there appeared to be no vision. The pulse was 200 and weak. The temperature was 100.6° F. and rose later in the day to 101.6° F.

On the following day the child vomited several times a bloody fluid, and had several tarry stools; bleeding also occurred from the left ear. There were general convulsions lasting two hours. The temperature fluctuated during the day between 98° and 104.2° F.; the child lost steadily and died at eleven P.M.

AUTOPSY.—There were evidences of a diffuse purulent meningitis over both hemispheres with an abundant exudation which was most marked at the convexity along the superior longitudinal sinus; the convolutions were flattened. Four ounces of turbid cerebro-spinal fluid were collected and measured. On removing the brain from the skull an abscess was opened about 2 c.m. in diameter on the inferior surface of the cerebellum. This contained green viscid pus and broken down brain tissue, and was surrounded by quite a dense membrane. It extended inward into the vermiform process. Both the lateral ventricles and third ventricle contained the same thick pus. Only the upper part of the spinal cord was examined; this was normal. The central canal was not dilated.

Pus from the abscess cavity was stained with gentian violet and acetic acid, and an organism resembling the meningococcus was found.

This case was almost moribund at the time of admission and was under observation so short a time that there was no opportunity to study it carefully. Unfortunately the middle ear was not examined at autopsy but there was no history of a discharge, except the bloody one mentioned. The symptoms during the period of observation were regarded as due to meningitis.

CASE IV. *One large and two small abscesses of the cerebellum.*

F. L., female, nine months old; was admitted to the Hospital, December 7, 1896. There were four other children in the family; all reported healthy. The patient had never been strong; had measles three months ago, and was said to have been failing since that time. Reports regarding the duration of present illness were somewhat conflicting, but it appeared certain that the child had been ailing at least six weeks. Not much that was reliable could be learned regarding the early symptoms. There had been no vomiting, no diarrhœa.

On admission the child was fairly nourished, weighed fourteen pounds and five ounces, and had six teeth. The fontanel was rather large and slightly bulging. The eyes, ears, throat and nose were normal. There was internal strabismus; the pupils were dilated and responded feebly to light; knee-jerk, increased on both sides. The child was quiet but did not seem at all stupid; no paralysis, arms and legs being freely moved. Considerable cerebral irritability was manifested by grinding of the teeth and throwing the arms wildly about. The head was drawn back, but the post-cervical muscles were not rigid; pulse slightly irregular; respiration shallow and very irregular; temperature normal.

During the first few days of observation there was no special change in the symptoms. Marked irritability alternated with periods of drowsiness. The pulse at times was decidedly irregular and at times intermittent. The abdomen was not retracted; there was no vomiting; no constipation.

December 11. It was noted that the child had been part of the time very restless and in the intervals more drowsy than before; had vomited twice.

December 16. The bulging of the fontanel was increasing; pupils moderately dilated and did not respond to light: there was a loss of sympathetic reflexes; there was then a very marked general hyperæsthesia.

December 18. The condition was about stationary; vomited about once each day; on account of the great restlessness required bromide, two or three doses daily. Lumbar puncture made and about 10 c. c. of clear fluid drawn, cultures from which showed the staphylococcus pyogenes aureus, and another organism resembling the pneumococcus.

December 20. A very marked intermittent flush was noted which covered the face and neck and upper part of the chest. This came out rapidly and disappeared in a few minutes. When fully out it resembled closely the eruption of scarlet fever. It occurred several times a day, lasting from five to twenty minutes. Ankle clonus on the left side was noted.

December 25th. The history states that the child's general condition has improved in a most surprising way since her admission, and she has gained one pound in weight; the appetite is good, and the stools are digested. The temperature has been normal nearly all the time. Both the pulse and respiration have now become regular, but the drowsiness has rather increased and opisthotonos is still present. The knee reflexes are still much exaggerated, and there is slight rigidity of the feet and legs.

December 28. The pulse is more rapid, 160 to-day, but quite regular. The flushing of the face and neck is still repeated several times a day.

December 29. A marked tremor of the right hand is noticed for the first time, and continued for the greater part of the day. The left hand is somewhat rigid, and when touched the rigidity is followed by a rhythmical tremor which lasts several minutes. The rigidity of the lower extremities is now marked; the feet in extreme extension. The child is considerably weaker.

December 30. The rigidity of both feet and hands has increased; pulse 132, regular and strong; respiration 40 to 60 and very irregular; occasionally a slight tremor of the hands; right pupil is smaller than the left but both respond better than a few days ago; fontanel still tense and markedly bulging; opisthotonos less marked. The mental condition is about the same; when undisturbed the child is drowsy and quiet but very irritable when touched, and cries out in a fretful way. The abdomen is still normal. Her general condition is not so good; she has lost a pound in weight.

January 2. A second lumbar puncture made and 18 c. c. of clear fluid withdrawn, a bacteriological examination of which showed the staphylococcus in pure culture.

January 3. The withdrawal of the fluid has not been followed by any depression of the fontanel or any other change in the symptoms. The reflexes are all greatly exaggerated. Slight convulsive movements of the hands occurred to-day, followed by tremor lasting for some time. For the past two weeks the child has taken large doses of iodide of potassium but without any apparent improvement and it is now discontinued.

January 4. Frequent convulsive movements occur affecting the right hand and arm. There is paralysis now of the left side of the face; the mouth is drawn to one side; the naso-labial fold is deepened and the left eye very imperfectly closed. (This paralysis did not continue.)

January 7. The general condition has improved decidedly during the past week and she has more than regained her lost weight. In other respects there is little change. She is very restless much of the time but sleeps quietly at night. A purulent discharge from the ear noticed to-day, which is regarded as a possible explanation of the higher temperature of the last few days.

Cultures from the pus of the ear showed staphylococcus, streptococcus and another organism which resembles the meningococcus.

January 13. The discharge from the ear continues quite freely and has become offensive in spite of the frequent syringing. The pulse is weaker, quite irregular, and vasomotor symptoms continue. The child is more quiet than formerly.

January 14. Is growing steadily worse so far as the nervous symptoms are concerned. There is more dulness and less irritability. A careful test to-day shows that vision is present; pupils are still dilated and respond feebly to light; pulse irregular but not intermittent. Respiration irregular. The rigidity of the extremities is constant and now marked.

January 16. Swallowing has become so difficult that it has become necessary to give all food by stomach tube. Pulse is weaker and slightly irregular; stupor is more pronounced and opisthotonos less marked. There a few rales at the right apex behind.

January 21. Has failed rapidly in the last few days, having lost a pound in weight. Pulse is rapid and regular; pupils not so widely dilated; vomits occasionally for a day or two but not in any characteristic way. Still very irritable when disturbed but otherwise is quiet.

January 24. An examination of the eyes made by Dr. W. A. Holden, who reports a pallor of both optic discs, which, however, are sharply outlined; the vessels are of fairly normal calibre; no changes in the macula. He makes a diagnosis of simple optic nerve atrophy.

January 25. Rales on both sides of the chest behind. The bowels have been regular since admission and the stools are still well digested, although in general condition the child is losing rapidly.

January 28. Patient moribund, but not comatose. Pupils smaller than a few days ago; fontanel now depressed; rigidity of the extremities continues; pulse very rapid but regular. Died quietly from exhaustion on the morning of the 29th, having been under observation fifty-four days.

The symptoms which this long case showed may be grouped as follows:

Motor.—Opisthotonos nearly constant and generally marked; rigidity of all four extremities during the last four weeks only; tremor of the hands, especially the right, frequent during the last few weeks; no paralysis except a slight temporary one of the face; no general convulsions; ankle clonus for a time, especially upon the left side; knee-jerk always much exaggerated upon both sides.

Sensory.—Moderate hyperæsthesia early in the illness, no evidence at any time of headache or other pain.

Vaso-motor.—*Tache cerebrále* nearly constant; very marked and irregular flushing of the face and neck during the third, fourth and fifth weeks.

Mental.—General irritability alternating with dulness; no deep stupor or coma.

Special Senses.—Slight internal strabismus early; pupils dilated throughout the attack and responded feebly to light; optic nerve atrophy discovered in the sixth week; purulent discharge from the left ear developed in the fourth week.

General.—Pulse usually rapid and regular, occasionally irregular but never slow or intermittent; respiration very irregular nearly all the time, and much of the time on the Cheyne-Stokes order; temperature (see Fig. 4), practically normal for the first two weeks, the marked rise in the fourth week, apparently from otitis; constant elevation only during the last eight days; vomiting occasional and never characteristic of brain disease; the bowels always regular; abdomen never retracted; fontanel constantly tense and bulging. The progress was very irregular both as regards the nervous symptoms and the general condition, the child alternately losing and gaining in weight, and the nervous symptoms showing no steady advance for the first month of observation. Another factor in the diagnosis was the presence of pus organisms in the fluid drawn by lumbar puncture in the second and third weeks.

To summarize briefly, the symptoms which were practically always present were cervical opisthotonos, a tense bulging fontanel, moderate equal dilatation of the pupils, irregular respiration, a condition of mental irritability alternating with dulness, and increased knee-jerk. Late in the disease there were added

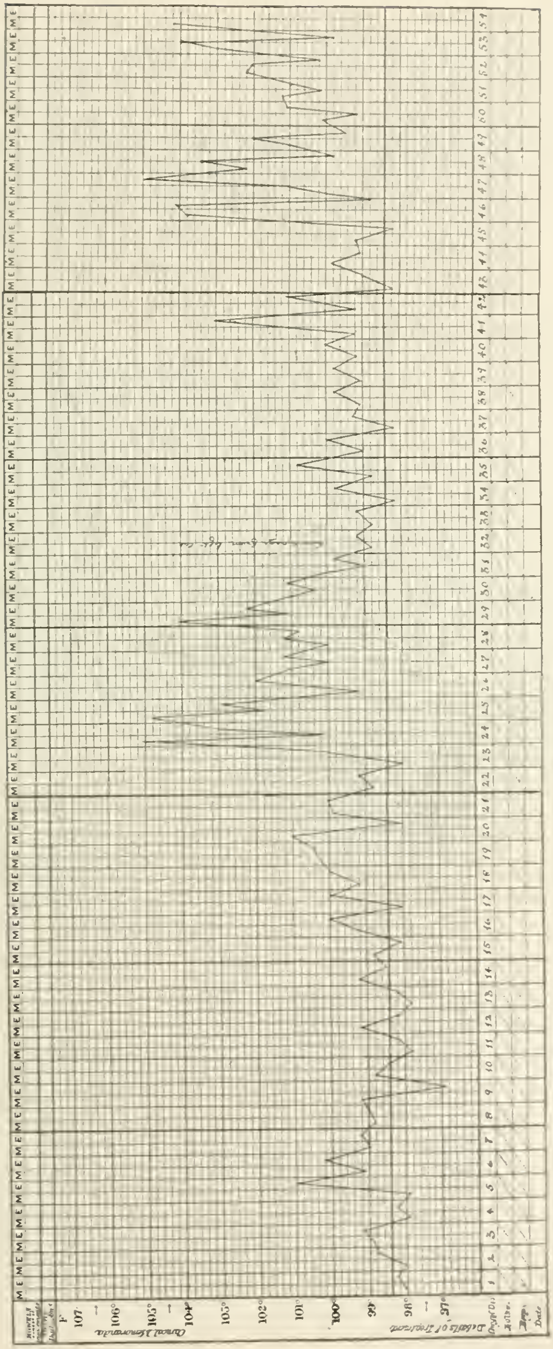


Fig. 4. TEMPERATURE RANGE IN CASE OF ABSCESSES OF THE CEREBELLUM. (CASE IV.)

irregular temperature, a discharging ear, rigidity of all the four extremities, marked vaso-motor symptoms, and optic-nerve atrophy.

The case was seen by nearly all the physicians connected with the Hospital and by many others. At the end of the second week one only was willing to put himself on record as in favor of tubercular meningitis, the others present at this consultation regarding the case as one of basilar tumor. The latter diagnosis was concurred in by a prominent nerve specialist who saw the case late in the fourth week. However, only two weeks before death another prominent specialist made a diagnosis of "arrested cerebral development, an atrophic cortex and latent hydrocephalus." After the result of the lumbar puncture was known the diagnosis was thought by those watching the case closely to lie between meningitis and abscess, and during the last week the latter diagnosis was regarded as altogether the more probable one.

AUTOPSY.—The pia mater was adherent to the dura over the right temporo-sphenoidal lobe and over the cerebellum; at the base there was a moderate amount of meningitis with purulent exudation; the cerebro-spinal fluid was increased in quantity, and the amount of fluid in the ventricles was greater than normal although they were not distended and the fluid was not purulent.

The right lobe of the cerebellum was considerably larger than the left, measuring 1 cm. more in both diameters; the middle lobe appeared compressed. In the right lobe of the cerebellum (Fig. 5), there was a large abscess which occupied nearly the whole lobe; this was surrounded by a sac wall which was dense and firm and about 1 mm. in thickness; the abscess contained a viscid greenish pus. A little to one side of this large abscess was a smaller one about 4 cm. in diameter; this was superficial, and though the walls of the two sacs were upon one side in contact, they did not appear to communicate. A third abscess about 2 cm. in diameter was superficially situated in the left lobe of the cerebellum, and like the other two was surrounded by a dense fibrous wall. There were no collections of pus in the cerebrum and no meningitis of the convexity. The medulla was compressed and displaced to the left.

There was no pus in the internal auditory canal. Nothing of importance was discovered in any of the other organs.

Smears from all the abscesses showed the staphylococcus, and plate cultures showed the same organism, pure. A microscopical examination of the wall of the large abscess showed a dense fibrous structure lined with stratified epithelium, and in places, some pigmentation. It appeared to have been an old cyst which had become infected.

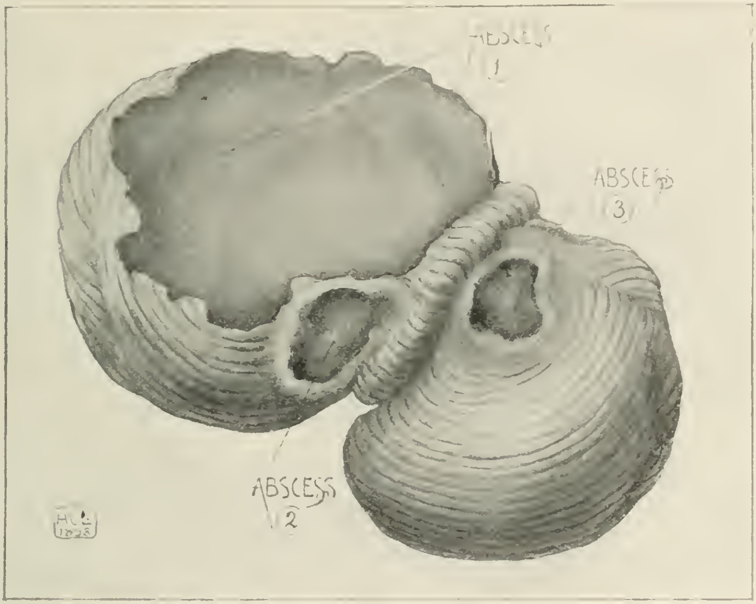


Fig. 5. abscesses of cerebellum. (Case IV.)

Case V.—*Acute pyocephalus, or suppurative ependymitis with pus filling both lateral ventricles, complicating a spinal meningitis which followed the infection of a spina-bifida sac.*

This case has already been published by Dr. Ira Van Gieson and myself (Journal of Nervous and Mental Disease, December, 1890.) and a brief abstract of that report will be here sufficient.

The patient was a female infant dying at the age of three weeks, having been under my observation in the Hospital since it was three days old. It was admitted for a lumbo-sacral spina bifida complicated by double talipes equino-varus and paraplegia. The spina bifida was covered with a granulating surface and had a very thin translucent wall. During the first two days the temperature was taken and found normal; it was not subsequently recorded but it did not appear elevated at any time. For the first two weeks the child was very quiet and slept most of the time, giving no sign of any cerebral disorder. During the last four or five days she failed rapidly and died apparently of innutrition, there having been no fever, vomiting, opisthotonos or convulsions. There was no enlargement of the head.

At autopsy the ventricles were found greatly enlarged and contained five ounces of thin yellow pus. They were surrounded by a mere shell of brain tissue which had an average thickness of less than 1 cm. There was no corresponding increase in the size of the brain as a whole. There was suppurative inflammation of the sac of the spina bifida, which contained half an ounce of pus, and purulent spinal meningitis extending throughout the cord and evidences of inflammation throughout the central canal. Under the microscope the same micrococci could be traced from the wall of the spina-bifida sac along the surface and central canal of the cord to the lateral ventricles. The symptoms were, therefore, entirely latent, there being no evidence of anything except a rapidly failing nutrition.

While this case should not strictly be classed as an abscess of the brain, it still has certain features in common with such abscesses, and illustrates a mode, although a rare one, of intracranial infection. Evidently the primary condition was a patent central canal of the cord with hydrocephalus, not accompanied by any enlargement of the head, and the origin of the pus was the access of pus germs to a previously serous fluid. That such an active and wide-spread infection of the central nervous system should occur without convulsions, fever, or any of the usual symptoms of brain or cord inflammation, seems most astonishing and serves to emphasize the fact illustrated by the other cases reported, that the ordinary rules of diagnosis do not apply in the case of young infants.

COLLECTED CASES.

Case VI.—*Cerebral abscess following trauma (?); no symptoms until a few hours before death.* (*Youl, Lancet,* 1847. i., 71.)

A child eight months old, no evidence of previous disease, received a wound in the temporal region by some sharp body, which healed properly; no cerebral symptoms observed until two weeks after the injury, when child vomited and shortly after was seized with general convulsions and died in an hour. Autopsy showed abscess containing two ounces of pus in the hemisphere situated [in frontal lobe?] at a point opposite to the scar of the external wound: surrounding brain tissue much disorganized; no meningitis. Abscess communicated with lateral ventricle.

CASE VII.—*Abscess of unknown origin in the cerebellum; pus in both lateral ventricles.* (*Hughes-Willshire, Lancet, October,* 1853.)

Female child three months old with cerebral symptoms for twenty days; under observation for two weeks. Sudden onset with a sort of convulsive attack, very restless, nursed with difficulty; repeated convulsions during the period of observation, also vomiting, irregular respiration and extreme restlessness; temperature not mentioned. Autopsy showed brain congested, softened patches of meningitis over convexity; abscess cavity in the cerebellum which appeared to be lined by a thin membrane, medulla softened. about three ounces of pus in each ventricle, ependyma thickened and vascular, spinal cord so far as examined was normal.

CASE VIII.—*Abscess involving the entire frontal lobe.* (*Wyss. Jahrbuch für Kinderheitkunde.* iv., 129-139.)

Boy ten and one-half months old, who fell several feet striking the head four days before the first symptoms. Sudden onset with crying and severe pain in the night, followed ten hours later by twitching of right arm and leg. Eight days after onset, paralysis of right arm and leg. Five weeks after onset, twitching of left arm and leg, fever present; circumference of head increased. On week later measles developed; child became unconscious; pupils equally dilated; right arm flexed; contracture at elbow and knee. Six to eight convulsions daily, during one of which the child died, on the ninth day after onset of measles and seven weeks after beginning of illness. Autopsy showed left hemisphere of brain larger than right, owing to an enormous abscess involving almost the entire frontal lobe. Abscess cavity separated from surrounding brain substance by a membrane having smooth surface; no communication with ventricles, which were distended with clear serum.

CASE IX.—*Abscess of occipital lobe of left hemisphere following a punctured wound.* (*Wyss. loc. cit.*)

Boy eighteen months old. Eight days before death he fell striking head against a frame containing nails, two or three of which penetrated the skull. Except for restlesness the child was well, until one day before death. He then began to vomit and during the following night twitching of arm and leg occurred; respiration became noisy and death occurred in about twenty-four hours. Autopsy revealed two wounds in occipital region around which there was slight infiltration but no suppuration.

Abscess in posterior lobe of left hemisphere, the latter being broken down and softened as far as the roof of the left lateral ventricle; ventricle contained blood stained serum but no pus; area of softening not sharply defined.

CASE X.—*Abscess of the entire left cerebral hemisphere.* (*Bednar. Wiener Med. Wochenschrift.* 1871.)

An infant of six weeks in whom the first symptom appeared on seventh day after vaccination; no traumatism. No motor disturbances, but the head rapidly enlarged in all directions; pupils contracted, and the eyes were turned inward and upward. Death on the third day. Autopsy.—Entire left hemisphere hollowed out and filled with pus; cavity separated from cortical surface in the frontal region by a very thin wall of softened brain matter. In parietal region, wall somewhat thicker; cavity communicated with left ventricle; inner wall roughened and fatty. Pus in the right and in the third and fourth ventricles, also in the spinal cord in the space between the dura and pia. Meningitis present.

CASE XI.—*Encysted abscess of the right ventricle.* (*Warner. British Medical Journal.* 1873. Vol. ii., p. 460.)

The patient was fourteen months old and had indefinite symptoms for several months; first definite symptom was a convulsion lasting for three hours, followed two days later by another and this two days later by a convulsion in which the right arm and left leg only were involved. Eight days after the onset two more convulsions occurred during the last of which the child died. Head generally enlarged; anterior fontanel open and pulsated strongly; pupils dilated equally, disc in each eye normal. The autopsy revealed an apparently encysted abscess containing four ounces of pus in the front part of the right ventricle bulging into the anterior lobe. Abscess limited by a thick, tough and vascular membrane apparently of some duration. A slight amount of meningitis at the base of the brain; no tubercles.

CASE XII.—*Abscess of parietal lobe, following punctured wound: operation; recovery.* (*Courvoisier. Correspondenzblatt. für Schweizer Aertzle. Basel.* 1879. Vol. lx., No. 14.)

Girl, two and a-half years old, who had received a penetrating wound with a pair of shears in left parietal region. Seven days later the first symptoms developed, consisting of vomiting, insomnia, headache, paralysis of right leg and arm, ptosis, and strabismus of left side. Later, fever and paralysis of left face, with paralysis of right arm and leg. Operation four days after onset of symptoms. Depressed fracture found and piece of bone removed, when thick, yellow pus escaped; incision of dura released a tumblerful of pus. Five hours after the operation consciousness returned and paralysis disappeared. Two months later the child was perfectly well, except for some paresis of right arm and leg.

CASE XIII.—*Abscess of frontal lobe following traumatism.* (*Koehler. Irrenfreund. Heilbrunn.* 1879. Vol. xxi., 33-44.)

Boy, eighteen months old, who fell, striking forehead against a file, which penetrated the frontal bone. Four weeks later the scar inflamed and a piece of file one inch long was removed. Subsequently the child began to vomit and passed into coma. A small swelling appeared at the aperture in the frontal bone, which pulsated and was easily reduced. Pus was removed by aspiration, and the patient improved. Coma again developed and the swelling again appeared, but upon aspiration, no pus was obtained. Tremor of left half of body. Death in coma, after an illness of a few days. Autopsy.—Abscess the size of an egg in left hemisphere; cavity communicated with opening in the frontal bone and with left ventricle. Pus had penetrated through the foramen of Munro into the right ventricle; third and fourth ventricles also contained pus. The author believes that the abscess had existed for several weeks without definite symptoms, and that death was due to rupture into the ventricles.

CASE XIV.—*Pyocephalus in a child of five months.* (*Transactions of the Pathological Society of London.* 1881. xxxii., 6.)

Child of five months had been in good health until one week previous to admission to the Hospital, when it had a convulsion. On admission, slight opisthotonos; thirteen days later, opisthotonos had increased, and child in a convulsion. During the last three days the temperature ranged from 101° to 103.4° F. Duration of symptoms, twenty days. Autopsy.—Walls of ventricles injected and their cavities much distended with pus. The central canal of the cord, and also the subarachnoid space, contained pus. Signs of meningitis from the optic chiasm to the medulla; no tubercle in brain or other organs.

CASE XV.—*Multiple abscesses of the brain of pyæmic origin.* (*Ellinger. Jahrbuch für Kinderheilkunde.* 1881. xvii., 110.)

A child of seven weeks, which died after being under observation twenty-four hours. Temperature 39° C.; frequent clonic spasms; pupils dilated; right divergent strabismus and left facial paralysis. Autopsy revealed diffuse purulent meningitis of the convexity and base of both hemispheres. Where the gray and white matter met, about thirty encapsulated abscesses were found, varying in size from a pea to a hazelnut. Phlebitis of the umbilical vein and of vena porta. The abscesses probably originated from embolism of capillaries. Meningitis was probably caused by the bursting of some of the abscesses into the meninges.

CASE XVI.—*Cerebellar abscess of traumatic (?) origin without fracture of the skull* (*Hadden. St. Thomas' Hospital Reports, London.* 1884–86. xiv., 279.)

A girl, seven months old, had received an injury to the head three months before the appearance of the first symptoms. Initial symptoms, fever and vomiting, ten days after which convulsions occurred. When first seen, the child was unconscious; neck and extremities rigid; respirations 60; temperature 101.2°. Convulsions continued, and before death the pupils became dilated and fixed; there was nystagmus and strabismus. Death four weeks after the first symptoms. Autopsy revealed a superficial abscess involving the under surface of left lobe of cerebellum. Pus in the mastoid cells on both sides; acute meningitis of the base and spinal cord. [In this case it appears probable, from the presence of pus in the mastoid cells, that this may have been the origin of the abscess, rather than the injury to which it is ascribed. REF.]

CASE XVII.—*Abscess of the temporo-sphenoidal lobe secondary to ear disease.* (*Randall. Proceedings of Philadelphia Pathological Society. University Medical Magazine.* 1888–89. i., 373.)

A girl of four years, suffering from suppuration of the mastoids and the left elbow joint and thumb. Caries of both temporal bones from which sequestra were at various times removed; thumb amputated, elbow joint excised. Though these operations were well borne, the child gradually sank and died without cerebral symptoms. At autopsy a large abscess was found in the left temporo-sphenoidal lobe above the opening in the root of the tympanum, which had evidently burst and evacuated itself through the ear causing a gush of pus which had preceded death. No meningitis; lungs filled with cheesy tubercular nodules.

CASE XVIII.—*Abscess of the temporo-sphenoid lobe following otitis and mastoid abscess.* (*Dench, American Gynæcological and Obstetrical Journal, October,* 1897, *also New York Eye and Ear Infirmary Reports,* 1897, page 121.)

The child, two months old, brought to the Infirmary Clinic with a history of the symptoms of acute suppurative otitis of two weeks' duration, and a swelling behind the left ear which had lasted nearly as long. Patient was admitted to the hospital, the soft fluctuating swelling over the mastoid was incised, and half an ounce of thick pus evacuated. A portion of the temporal bone, above and behind, was coated with unhealthy granulations. The dura was exposed but appeared healthy and no exploration of the brain was made. During the next two weeks the patient was in excellent condition but had fever—102.5° to 103.5°. On the fourth day was dull; had a slight paralysis of left face, refused to nurse; temperature rose to 104.5°. Probe pushed through the dura and half a drachm of thick pus escaped: probe passed two inches into the brain, opening enlarged; no further pus found. Child brightened after operation but the next day developed irregular respiration, general convulsions, died; no autopsy.

CASE XIX.—*Traumatic abscess of the right frontal lobe, operation, recovery.* (*Borelius. Jahrbuch für Kinderheilkunde.* Vol. xxxii., p. 189.)

A boy four years old, who fell upon a splinter of wood which punctured the upper eyelid. One week later, the lid became swollen and epileptiform seizures and other cerebral symptoms occurred; no paralysis, but twitching was more marked in left arm and leg. After an exploratory puncture, deep incision was made in the upper eyelid and a large amount of pus evacuated. A probe would pass through roof of orbit into frontal lobe. Drainage tube inserted and patient recovered without cerebral symptoms; discharged one month after operation.

CASE XX.—*Abscess of left lobe of cerebellum following otitis.* (*Clarkson, Edinburgh Medical Journal.* 1892. Nov., p. 475.)

A boy two and one-half years old who had suffered from otorrhœa left side for eighteen months before death. First grave symptoms five weeks before death when left facial paralysis was observed, followed by drowsiness and vomiting of a cerebral type. No paralysis or contraction of any muscles of the limbs. Temperature normal until shortly before death, when it reached 103°. Operation performed by trephining over temporo-sphenoidal region; but abscess was not reached. Condition so bad that further operation deemed unwise. Child gradually lapsed into coma and died the next day; no localizing symptoms. Autopsy showed abscess in left lobe of cerebellum the size of a small egg and a localized meningitis. No other lesion of the brain. Middle ear was filled with unhealthy granulations which extended into the internal ear, the bony walls of which were carious.

CASE XXI.—*Abscess of temporo-sphenoidal lobe secondary to otitis and mastoid disease. Operation, recovery.* (*McEwen. Pyogenic Diseases of the Brain and Spinal Cord.* 1893. Chap. II., p. 79.)

Patient twenty-two months old when admitted to hospital with symptoms of cerebral disturbance and a discharge from the ear. For four months discharge had been profuse and very offensive. Paralysis of seventh nerve occurred six weeks prior to admission; constant pain; temperature 103°. Operation five days after admission, necrosed portions of mastoid and a considerable portion of petrous bone being extracted. Abscess in temporo-sphenoidal lobe from which two drachms of pus were removed; surface of brain eroded and softened. Abscess cavity washed with boracic solution and drainage tube inserted. Temperature fell and continued normal; tube removed on sixth day and the wound closed at the end of a month; child known to be well six months later.

CASE XXII.—*Abscess of temporo-sphenoidal lobe secondary to otitis and mastoid disease. Operation and recovery.* (*McEwen, loc. cit.* 1893. Chap. II., p. 79.)

Patient two years old. Profuse, foul smelling, purulent discharge from left ear for four months; facial paralysis. Operation on the following day: necrosed mass removed from mastoid together with portion of the petrous bone, which gave vent to several ounces of pus. Eroded aperture found in dura mater leading into an abscess cavity in temporo-sphenoidal lobe. Cavity washed but no drainage tube inserted as the opening was large. Surface of the brain shaggy and softened. Complete recovery.

CASE XXIII.—*Abscess of temporo-sphenoidal lobe, following otitis.* (*McEwen, loc. cit.* 1893. Chap. ii., p. 181.)

A boy of three years had a purulent discharge from left ear for more than two years. A year later he had an illness lasting a month, probably a cerebral abscess, which discharged suddenly through the ear, after which he rapidly recovered. Some discharge continuing from the ear, however, a solution of nitrate of silver was injected, which was retained and caused excruciating pain, followed in two hours by delirium, and finally by coma, which persisted until death occurred, four days after. Examination after death showed that the membrana tympani had disappeared, and that a probe could be passed freely into an old abscess cavity with firm walls in temporo-sphenoidal lobe. The silver solution had probably entered this cavity, causing encephalitis, which resulted in death. The abscess was probably of more than a year's duration.

CASE XXIV.—*Cerebellar abscess following otitis.* (*McEwen, loc. cit.*, p. 79.)

A girl four years old had contracted scarlet fever. On twenty-first day of illness, left otorrhœa; on thirty-first day, nervous symptoms, with amaurosis and mydriasis; on thirty-eighth day an abscess behind the left ear burst and fœtid pus escaped: on sixty-ninth day, child could see and was well for three months, except for a fœtid discharge from the sinus. Seven months after onset of first illness she was seized with headache, followed by retraction of the head and other grave nervous symptoms, including convulsions. During the last days of life she became blind; death on the fifteenth day of the second illness. Autopsy.—Abscess was in left lobe of cerebellum extending into the pons; abscess in pons had firm walls. Pia mater over cerebrum involved and all the ventricles enormously distended with chronic serous effusion. The cord showed marked lepto-meningitis with a large amount of serum within the membrane, but no pus. Petrous portion of temporal bone extensively eroded and necrosed. The author believes that erosion of this bone first occurred, and through it the cerebellar fossa was invaded. The sinus was thrombosed and an extra dural abscess was formed, followed by one in the cerebellar hemisphere. The cerebellar abscess probably formed after the scarlet fever.

CASE XXV.—*Cerebellar abscess following otitis.* (*McEwen, loc cit.*, p. 216.)

A boy three years old. When one year old, he had measles followed by pertussis, during which a discharge occurred from the right ear: one month later abscess behind the ear. This was opened but for two years pus had flowed from the opening and from the meatus. First cerebral symptoms two weeks before admission. Ophthalmoscopic examination showed congested fundi but no distinct optic neuritis; subsequently, congestion of the fundi became greater: when the child attempted to sit up he fell to the right: marked cerebellar ataxia; the temperature which had for some time been sub-normal or normal rose suddenly to 102°; death twenty-two days after onset of brain symptoms. Autopsy.—Abscess involving middle lobe of the cerebellum projecting into the ventricle; anterior wall had disappeared: posterior wall remained and was firm and yellow; right lateral cerebellar lobe softened; dura thickened particularly over the temporal bone. Marked lepto-meningitis with miliary tubercles scattered freely in the sylvian fissure, acute basal and cerebellar lepto-meningitis; cerebral ventricles greatly distended with fluid; tubercle in other organs, especially lungs. The author believes that it is possible that the whole disease originated from tubercle of the petrous bone spreading thence to the membranes of brain.

CASE XXVI.—*Traumatic abscess of the frontal lobe; operation: recovery.* (*Zdekauer. Jahrbuch für Kinderheilkunde.* 1893. XXXV., 297.)

A boy two and three-fourth years old, who fell upon a nail which penetrated left side of head. Five days later, fever; complete right hemiplegia and left side ptosis; temperature 39°C., pulse 45. Over left temporal bone, there was a wound from which pus discharged. Operation performed in which the dura was found to be fluctuating. Puncture of dura released two ounces of green malodorous pus. Drainage tube inserted and pulse soon rose to 95 and temperature fell to 37°C. An uneventful recovery followed, the paralysis having entirely disappeared, with the exception of paresis of left hand.

CASE XXVII.—*Abscess of the temporo-sphenoidal lobe following otitis.* (*Ashby and Wright. The Diseases of Children.* Ed. 1893. p. 430.)

A girl two years old who had a discharge from the left ear for three months. Fourteen days before admission she had a right-sided convulsion, and four days later a second convulsion. Almost complete motor and sensorary paralysis of right arm and leg with loss of sensation on left side of face and left ptosis. Death eighteen days after the first convulsion. Abscess cavity found in left temporo-sphenoidal lobe extending into occipital lobe and reaching internal capsule.

CASE XXVIII. *Abscess in the left middle lobe of the cerebrum following otitis.* (*Reimer. Jahrbuch für Kinderheilk.* xi., p. 58.)

Male, four years old, admitted with general tuberculosis; no previous history except that he had been ill for two months. Was under observation seven days. On admission, a foul discharge from left ear; left facial paralysis; ptosis and external strabismus left side, both pupils dilated; partial anesthæsia of left face; complained of severe pain in left side of head; mind clear; contracture of right hand; temperature 39° C.; irregular pulse. Three days later became stupid; had a chill, temperature 40° C.; general convulsions followed by paralysis of right side; died quietly with subnormal temperature. Autopsy showed large abscess in the left middle lobe filling two-thirds of the lobe; purulent meningitis at the base; dura greatly thickened and adherent over middle fossa; ventricles dilated with serum; caries of the petrous bone; ossicles destroyed; pus in mastoid cells; general tuberculosis.

CASE XXIX. *Abscess in the left frontal lobe following necrosis of the frontal bone.* (*Reimer, loc. cit.*, p 60.)

Male, three years old, delicate, rachitic; under observation seven and a half weeks; cerebral symptoms of six weeks duration. Bone disease existed for two and one-half months and had gone on to suppuration when brain symptoms, vomiting, fever and convulsions, developed. The local symptoms were headache of left side and later anesthæsia of left face; diminished hearing of left side and paralysis of left sixth nerve. Ten days before death, convulsions and high fever, followed by loss of speech and loss of consciousness; cornea ulcerated and perforated; death in convulsions. Fever during last two weeks constantly high, but pneumonia present. Autopsy showed large abscess occupying nearly the whole of left frontal lobe, containing foul pus; turbid serum in the ventricles; purulent meningitis at the convexity and on the left side at the base also: extensive necrosis of frontal bone; dura was adherent here and greatly thickened.

CASE XXX. *Abscess in the right middle lobe of the cerebrum following otitis.* (*Reimer, loc. cit.*, p. 67.)

Male child, four years old; delicate, rachitic; otitis of right side for one year; under observation for five days. Admitted with paralysis of right face, deafness in the right ear and a foul aural discharge; irregular pupils, the left being large, and severe pain in the head referred to the forehead, right side; very restless and irritable. Signs of tuberculosis in the lungs. Temperature during period of observation from 40° to 41° C. (probably from tuberculosis) and paralysis of right arm developed. Died from pulmonary hemorrhage with a slight convulsion at the close. Autopsy showed general tuberculosis; tubercular meningitis, particularly at the base; caries of petrous bone and ossicles, and abscess in the right middle lobe, size of walnut, containing foul pus. [Cerebral symptoms in this case were certainly in the main due to meningitis. Ref.]

CASE XXXI.—*Two abscesses in the middle and one in the posterior lobe of the cerebrum.* (*Lloyd. Med. Times and Gazette.* 1861. i., p. 199.)

Boy four years old who received wound in right side of neck, which bled freely. Twenty-five days later had a convulsion after which he was paralyzed on left side. He had no further marked symptoms and died ten days later. Right hemisphere softened with two circumscribed abscesses in the middle and one in the posterior lobe. Lesions supposed by author to be due to diminished blood supply.

CASE XXXII.—*A large abscess of parietal lobe following traumatism.* (*Unpublished case of C. T. Poore, M.D., referred to in Starr's "Brain Surgery,"* p. 185.)

Male, three years old, in August fell down stairs striking head against heel of mother's shoe, and causing scalp wound in left parietal region. One hour later convulsions, which were repeated in three hours. Admitted to hospital October 10, with history that he had lately dragged right foot and not used right hand; was nauseated and cried out nights. On October 20, first careful examination made showing complete paralysis of right arm and leg, partial of right face; right pupil larger than left, both respond to light; mental dulness. A scar at site of injury and skull felt to be depressed, no fever. Five days later was trephined at this point; dura found normal; incised, brain found normal; considerable shock and further exploration decided against. After operation paralysis improved, especially in arm. November 3, had convulsions, which were repeated frequently the next ten days, sometimes beginning on right side, some during times more marked on left side. Pupils contracted; died in convulsions November 17th, twenty-four days after operation and about three months after the injury. For two weeks after operation temperature not above 100.4°; during next week, normal most of the time; on the day before death, rose to 105.5° F.; no deep coma, pulse 90 to 110, sometimes irregular; respiration 16 to 20. Autopsy showed general adhesions of pia, but no acute meningitis. Large abscess in left parietal lobe containing eight ounces of pus; no communication with ventricle.

(*To be continued.*)

Hibbard, Cleon M.: Gastric Ulcer in a Child Four Months Old. (*The Boston Medical and Surgical Journal.* 1897. Vol. cxxxvii., No. 7.)

Gastric ulcer in children is such a rarity that only a few cases have been reported.

A. H. Hare collected in literature fourteen cases under fourteen years, with but five under three years of age.

Colgan has added another case in a girl two and a half years old, who was ill thirteen hours with convulsions and high temperature. Autopsy showed a round ulcer on the greater curvature near the cardiac end of the stomach, which had perforated, causing a peritonitis.

Rotch reports a case of Dr. Northrup's in a female one year old. "The infant was under treatment for one month. It had vomiting and diarrhœa. In the second week it began to refuse its food and to emaciate. The diarrhœa continued and the vomiting was persistent. The vomitus was somewhat brownish in color; the child died of exhaustion. The mucous membrane of the stomach was covered with small ulcers, varying in size from a dot to one centimetre in diameter." There was one large ulcer which had perforated.

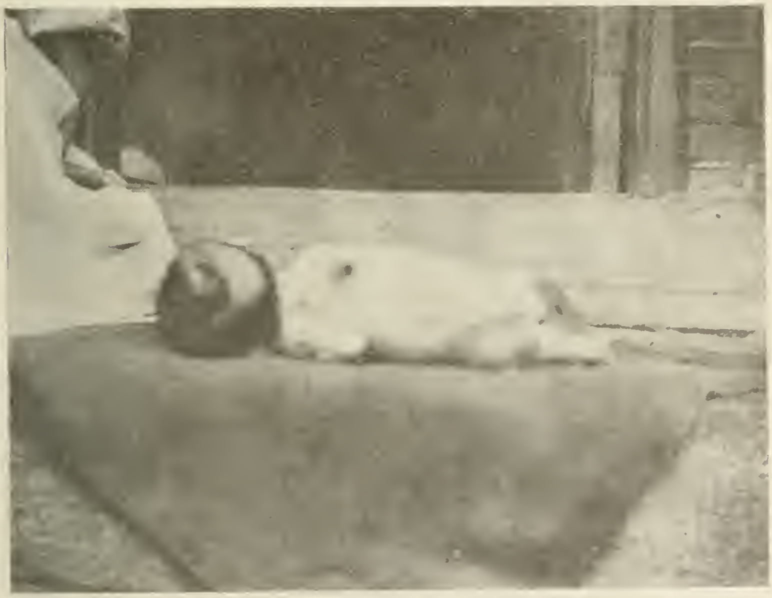
Clinical Memoranda.

A CASE OF GANGRENE OF THE SKIN.

BY DAVID T. MARSHALL, M.D.,
Late House Physician, Infants' Hospital, New York.

M. M., supposed to be five months old was admitted to the Infants' Hospital on July 20, 1897. No history was obtained. The weight was 8 pounds, 15 ounces. The child was bottle fed and lost steadily in weight, weighing on July 26th, 7 pounds, 6½ ounces.

On July 29th several spots were noticed which looked much like mosquito bites and felt nodular beneath the skin.



On July 30th at 6 A.M., one of the spots on the mid-dorsal region near the spine showed a blackened centre as large as a split pea. At 12 o'clock the black spot had increased to the size of a cent and was distinctly gangrenous in character. It was surrounded by a reddened inflamed area as large as a silver dollar. Beyond this was a band one-sixteenth of an inch in width, of a pus-yellow color, and from this outward a reddened area shaded off into the normal skin.

At 6 P.M. there were six such plaques on the skin. One of these was on the inner aspect of the knee, one on the outer aspect of the thigh, and one on the sole of the foot, the others being on the arms. The original spots had increased still farther in size.

The child showed the following temperature on July 30th; At 8 A.M, 102°; at 6 P.M., 103°; on July 31st at 6 A.M., 101°. It died at 1 P.M., July 31st.

Autopsy.—Fifteen spots were counted on different parts of the body, being in various stages of development. In the lower lobe of the left lung there was an indurated nodule as large as a hickory nut. This showed on the lung surface a yellow spot as large as a split pea. On section there was no cheesy mass. There were five or six small nodules as large as peas in various other parts of the lungs. The ileum and colon were somewhat congested. The mesenteric glands were moderately enlarged. The other organs—heart, liver, spleen, kidneys, and brain—were apparently normal.

205 WEST ONE HUNDRED AND SIXTH STREET.

ACUTE NEPHRITIS COMPLICATING MUMPS IN A BOY FOUR YEARS OF AGE.

BY CHARLES GILMORE KERLEY, M.D.,
New York.

A vigorous, well nourished boy became ill with the mumps late in November. I was called the third day of the disease, and found the attack of moderate severity. There was considerable swelling of the parotid and sub-maxillary glands, on both sides. The temperature was 101° F. There was no rash, and the throat was not in any way involved. Among the instructions as to the care of the patient, rest in bed was enjoined. I did not see the patient again until five days had elapsed—the eighth day of the illness. The instructions had been fairly well carried out, with the exception that the child had not been kept in bed, being allowed to be up and about the house every day. At this, my second visit the patient presented a markedly changed appearance. He was very pale, the skin being of a waxy whiteness. There was considerable œdema of the lower eyelids and the adjacent parts, but none elsewhere. There was entire loss of appetite, marked prostration, extreme restlessness and irritability. There was no vomiting. The temperature was 103° F., pulse hard and wiry, 140 to the minute. The skin was hot and dry. No urine had been passed during the previous twenty-four hours, neither had the bowels moved during this time. For two days, previous to the suppression, the mother had noticed that the urine was high colored and scanty.

The child was at once subjected to a flushing of the colon with twenty-four ounces of normal salt solution at 110° F. He was surrounded with protected hot water bottles, and wrapped in heavy flannel blankets. In one hour from the time of receiving the colon flushing, about one half of the water was passed, together with a small stool. At the same time, two ounces of urine of a deep red color was voided. The urine was tested with heat and nitric acid and was converted thereby into almost a solid mass. The microscopical examination showed red blood corpuscles in abundance with granular and hyaline casts. The further treatment consisted in the administration of four drachms of liquor ammoniæ acetatis at three hour intervals, and five grains each of the acetate and citrate of potash in watery solution with fifteen minims of sweet spirits of nitre, also given at three hour intervals. One grain of calomel in divided doses completed the medication. A mixture of half milk and half water was freely given. After ten hours of the medication, and the constant application of heat, free perspiration was induced. The temperature fell to 101° F. and the patient slept comfortably.

Four ounces of urine were passed during the next twenty-four hours. The temperature during this time remained at 101° F. Perspiration was fairly free, and a pint and a half of the milk and water mixture was taken. The examination of the urine showed it to contain a slightly lessened amount of blood and albumin. The colon was again flushed with the hot saline solution. The medication was continued as before. The following day, the third day under observation for the nephritis, the urine was passed more freely, but a sufficient amount could not be collected for examination. The patient was most obstinate, and would only urinate in the napkin. The temperature fell to the normal, and there was a marked improvement in all the symptoms.

The further progress of the case was uneventful, except in that the recovery was rapid. A small quantity of urine was collected on the sixth day of the attack by means of imbedding the penis in absorbent cotton. The urine thus obtained proved to be normal. Repeated examinations which were made later, failed to detect anything abnormal in the urine. The recovery was satisfactory in every respect, the only evidence at the present time of the illness passed through being a slight degree of anæmia.

The case is peculiar in that the nephritis followed an attack of mumps—a very rare complication. Further it demonstrates how rapidly and completely a child may recover from an alarming degree of nephritis.

In closing, I would call attention to the value of the hot saline solution in the management of cases of this type. I have employed it frequently in nephritis with suppression and have found it a most efficient means of inducing the kidneys to resume functional activity.

113 WEST EIGHTY-THIRD STREET.

A CASE OF TETANUS FOLLOWED BY RECOVERY.*

BY FREDERICK A. PACKARD, M.D.,
Philadelphia.

Some years ago at an institution in this city some large trees were being cut down and converted into butchers' blocks. High up in the trunk of one of them there was found a collection of cobblestones in the very centre of the tranverse section. These must have been enclosed in the growth of the tree early in this century, and were considered a sufficient curiosity to be preserved. To the surprise of those interested in the find, it was later found that the contractor had chopped up the block and carefully collected the cobble-stones as specimens of this freak of nature, so that all that was left to show to the curious was a group of ordinary cobble-stones such as might be picked up in the street.

I am reminded of this incident from the fact that the patient presented to-night shows no trace of his illness, and I am showing to the society a practically normal boy.

On October 19th, the patient, Frank M., white, aet. twelve years, was brought to the Children's Hospital on account of "spasms." On admission the following history was obtained:

---

*Read before the Philadelphia Pediatric Society, December 14, 1897.

On October 14th he seemed somewhat drowsy, but otherwise in his usual state of good health. In the evening of this day his mother noticed some "fever blisters" on his lips and tongue. During the night he was restless, but complained of no pain. On the 16th he seemed a little indisposed, but played around all day, and it was afterwards remembered that while playing leap-frog on this day he hurt his abdomen, which being properly translated probably means that his "abdomen hurt him." On the morning of the 17th (two days before admission) his appetite was very poor and he could not open his mouth to eat, so that his food had to be moistened and pushed between the teeth. In the afternoon he became more drowsy and a physician was summoned. At this time there was noticed some soreness of the right side of the jaw and some swelling immediately below it. This corresponded to the position of a badly decayed tooth, although at no previous time had there been any complaint of toothache. Toward evening he tried to eat some softened biscuit, but could only take a little and that with great difficulty, owing to fixation of the jaws. This was the last attempt at eating until his admission to the hospital. On the 18th (the day before admission) he was able to sit in a chair all day and had no marked pain.

On the morning of his admission the mother noticed marked retraction of the head and increased inability to open the jaws. At the same time intense epigastric pain, especially upon coughing, caused much distress. During the day the retraction of the head became more marked, tonic and clonic spasm appeared, and the boy was in complete opisthotonos for the greater part of the day.

He was brought to the hospital in the ambulance during the evening. When seen he was found to be perfectly conscious and rational, apparently suffering a great deal of pain, although not crying out. There was marked opisthotonos, the head being strongly retracted, the back arched and the toes pointed. The teeth were clenched and could not be opened, although they could be inspected through the lips, which were retracted in such a way as to present the typical "risus sardonicus." The teeth were in very bad condition, carious and discolored, with the roots uncovered by the retracted and spongy gums. There was much pus undermining the gum and swelling out along the root of the tooth on pressure. The abdomen was retracted and board-like, with tenderness on pressure. The arms were usually firmly flexed at the elbow. There was an occasional cough, evidently repressed because of its exciting epigastric pain. At short intervals an expression of pain came over the face with contraction of the muscles about the angle of the mouth and chin. The hand was then placed on the abdomen, a sort of tremor began over most of the body, and a succession of smothered coughs (as though he were saying "a-chew") followed. At this time the state of tonic spasm was much accentuated and clonic contraction of the facial muscles and the flexors of the arms and legs occurred. Consciousness was fully preserved during these attacks, as well as in the interval.

Careful examination revealed no wound, inflammatory superficial lesion, or other port of entry for the poison save the carious teeth and lesions of the gums. He was given chloral and bromide of potash in quite large doses, and the mouth was cleansed as thoroughly as possible with peroxide of hydrogen solution and listerine.

On the next day (October 20th) he was found to be much easier, the tonic spasm being less intense, and the clonic movements occurring less frequently. Again careful examination showed not even a trivial superficial lesion and no eruption. He was conscious and rational, the pupils equal and natural. The tendon reflexes were all tremendously increased and ankle clonus and chin-jerk were easily developed. There was evident hyperæsthesia to touch.

Dr. John Ashhurst, Jr., saw the case with me and advised the substitution of extract of physostigmia for the potassium bromide. Throughout this day the symptoms continued almost unabated, and at times the clonic spasms became more severe. At 2 P.M. he had a severe coughing spell which produced a convulsion lasting five minutes, during which there was marked opisthotonos and great cyanosis, but no loss of consciousness. This was followed by a restful sleep, during which the muscles relaxed and the trismus was less marked, although still present. While asleep the body was covered with sweat. On the next day he was rather better, but at 7 A.M., after an attack of coughing, he went into more marked spasm, with complete opisthotonos and labored breathing, followed by apnœa with absence of radial pulse. The spasm continued for about five minutes, during which time the pupils were much contracted. During the emainder of the day he complained of pain in the nucha and in the thighs, but his epigastric pain had disappeared. At 7.40 P.M., after a paroxysm of coughing, he had another spasm lasting but a few minutes before it was cut short by inhalation of nitrite of amyl; cyanosis was present during the attack, but for a few seconds only. After the first relaxation spasm tended to recur, but was prevented by the intermittent use of chloroform inhalations for about forty minutes. Except for its lesser degree this convulsion differed in no way from that in the morning. Between these attacks the rigidity continued.

On the 22d the note states that he rested well until midnight, when he became restless, impatient, and began demanding various articles that could not possibly be obtained for him. After midnight he fell into a quiet sleep, which lasted for several hours. During this sleep the jaw dropped, the opisthotonos became less marked and the muscles of the extremities relaxed somewhat. During the 22d he was in a rather peculiar mental condition, demanding inhalations of amylnitrite and saying that he would have a convulsion unless given it.

On the 23d, after a quiet night, he had a convulsion at 8 A.M. This began with complete cessation of respiration, quickly followed by cyanosis, opisthotonos, clonic and tonic spasm of the extremities. The convulsion was preceded by a coughing spell and was of short duration. Later in the day he became quite unruly, demanding water and the bed-pan constantly, but refusing to drink the water or use the bed-pan when they were brought. He at one time became provoked and tore up some of his bed clothes. From this time he gradually improved, the opisthotonos persisting in lessening degree until November 6th, and the muscles of the abdomen and lower extremities gradually relaxing. Spasms of the masseters was the last evidence to depart, being present until about November 20th. He was allowed to sit up for a short time on November 9th without bad results. For about three weeks his gait was peculiar, the legs being stiff and scraped along the floor, the whole pelvis swinging with each step, the neck held rigidly fixed, and the lower jaw held stiffly, so that the two rows of teeth were separated by about a half-inch. Gradually improvement progressed until now he is quite well. During the whole time of his convalescence the tendon reflexes remained markedly increased. After getting out of bed and moving around he proved most docile and eager to get perfectly well.

In addition to what has been stated, there are a few notes that may be added. On one occasion (October 22d) the urine contained a trace of albumin and a few hyaline and epithelial casts. This finding was not present at other examinations. On the same day examination of the blood showed red blood cells, 3,500,000; white blood cells, 17,400; hæmoglobin, 85 per cent. The temperature was at no time much elevated. It was 100 4-5° F. on admission, and on only one occasion exceeded that point, on the morning of October 21st, when it reached 101 3-5°. It was almost constantly between 99° and 100° until October 30th, when it began to remain at the normal point. In regard to treatment, he was at first given a dose of potassium bromide (gr. xx.), chloral (gr. v.), whiskey (oz. ss.), and milk (oz. iii.), by rectum. This was followed during the night after admission by potassium bromide (gr. x.), chloral (gr. ii. ss.), whiskey (oz. iii.), and milk (oz. ii.), every two hours by mouth. On the morning of the 20th this was discontinued and extractum physostigmatis (gr. 1-6) with chloral (gr. x.) ever four hours substituted. On the 22d the physostigmia was increased to gr. 1-6 every third hour. On the 23d the chloral was discontinued. On the 1st of November the physostigmia was reduced to gr. 1-6 thrice daily, and was so continued until November 31st. At no time did he have unfavorable symptoms from the drug. Morphia was used hypodermically on a few occasions when the convulsions were severe, and he had a few inhalations of amylnitrite and chloroform.

The employment of the antitoxin was considered, but improvement, although slow, was so steady that it was not given.

The case was undoubtedly one of tetanus. The absence of port of entry except in the mouth is, of course, rather unusual and yet not unknown. It seems to me unjustifiable to class this with the so-called "idiopathic tetanus" in view of the horrible condition of his mouth. Unfortunately we did not seek for the tetanus bacillus in the gums.

The psychic phenomena appearing as improvement began are peculiar. The boy, since his convalescence, does not seem at all neurotic, and is quite quiet, reasonable and manly. At one time during the course of the case I felt to a slight extent less confident of my diagnosis, but the picture of the disease was too complete to permit of its being one of mimicry, and the course of the case fully justified the diagnosis.

110 SOUTH EIGHTEENTH STREET.

A FUNIS ONLY SIX AND ONE-HALF INCHES LONG.*

BY J. M. KRIM, M.D.,
Louisville, Ky.

Six days ago I was called in to see a patient in her third pregnancy, attended by a midwife, who had been in labor eighteen hours. I found the woman almost moribund, and in asking the midwife about the condition present she said the woman became in that condition every time she had a pain, that she would rally in a few minutes, all of which proved to be true.

I found plenty of room in the parturient strait; the head was presenting low down; and while I was making my examination she had another pain which resulted in a similiar condition of partial coma; she would almost have a convulsion, complaining of terrific pain in her abdomen. I thought the best plan was to immediately use the forceps, and they were gotten in readiness and applied. I made a very limited amount of traction, when all at once something popped like a gun and the head came through easily. I found that the cord had snapped off close to the abdomen; bleeding was profuse; there was not enough stump to apply a ligature, but I succeeded in grasping it with forceps, and in this way controlled the hemorrhage, afterward applying a proper bandage.

I tried to find the fundus of the uterus, but was unable to do so, owing to the fact that it was partially inverted. Finally by making traction the placenta was delivered, and I found that the umbilical cord was only six and one-half inches in length. As I could now only introduce one finger through the external os and was unable to accomplish anything by this means, I took a heavy probe and wrapped it with absorbent cotton, making a large swab; it was introduced and the inversion of the uterus reduced.

I report the case as being peculiar on account of the shortness of the funis. The child is living and doing well. Evidently the placenta was attached very high, and with each contracting pain it pulled on the fundus of the uterus, and the pain incident thereto must have been intense.

---

* Reported to the Louisville Clinical Society.

A SIMPLIFICATION OF A SIMPLE METHOD.

BY THOMPSON S. WESTCOTT, M.D.,

Instructor in Diseases of Children, University of Pennsylvania.

Since the publication of my paper describing "A Simple Method of Calculating the Proportions of Cream and Whole Milk Required to Make any Percentage Formula for Home Modification," in the January number of the ARCHIVES, my attention has been drawn by Drs. W. N. Harrison and J. Roby, of the Nursery and Child's Hospital, of New York, to the fact that the quantity of cream required could be calculated by a formula that would obviate the necessity of trying experimental values for *C*. Such a formula can readily be deduced from formulæ (2) and (3), remembering that $y + z = \text{F}$, (the desired fat percentage), and $\text{M} = x - \text{C}$. For

$$y = \frac{12\,\text{C}}{\text{Q}},$$

$$z = \frac{4\,x - 4\,\text{C}}{\text{Q}}.$$

Consequently,

$$\text{F} = \frac{12\,\text{C} + 4\,x - 4\,\text{C}}{\text{Q}} = \frac{8\,\text{C} + 4\,x}{\text{Q}}$$

and

$$\text{C} = \frac{\text{Q}\,.\,\text{F} - 4\,x}{8}.$$

In the example given, for a 3 per cent. fat and 1.50 per cent. proteid mixture of 40 ounces, the simplified formula becomes

$$\text{C} = \frac{120 - 61.6}{8} = \frac{5.84}{8} = 7.3 \text{ oz.}$$

If 16 or 32 per cent. cream is used the formula will become

$$\text{C} = \frac{\text{Q}\cdot\text{F} - 4\,x}{12 \text{ or } 28}$$

The calculations can therefore be simplified so as to require only two formulæ:

$$(1)\quad 3.90 : P :: Q : x,$$

$$\text{and } (2)\quad C = \frac{\text{Q}\cdot\text{F} - 4\,x}{8},$$

the amount of milk being found by subtracting *C* from *x*.

This is a decided simplification of the calculations given in my paper, and I desire to express my obligation to Drs. Harrison and Roby for their excellent suggestion.

Occasional Periscope of Teratology.

BY J. W. BALLANTYNE, M.D., F.R.C.P.E., F.R.S.E.
Edinburgh.

Muzio, G.: Teratoma of the Hard Palate. (*Giorn. d. r. Accad. di med. di Torino*, lx., 513, 1897.)

In a new-born and otherwise well-formed infant a cylindrical growth was found protruding from the mouth. It was attached to the hard palate and specially to its left side, had a soft consistence, and was covered by skin bearing lanugo hairs. At its base of attachment to the palate there was a sharp line of demarcation between its skin covering and the mucosa of the mouth. Since the tumor interfered with lactation, its base was ligatured with silk and it was excised, a few stitches being inserted to bring the margins of the incision together. The child recovered quickly but the author heard of its death two months later from some unknown cause. The growth was chiefly made up of masses of adipose tissue separated by trabeculæ of connective tissue fibres; its covering had the structure of the skin, and showed dermis and epidermis and epidermal appendages. Some striated muscular fibres were also met with in it. It was thus evidently not a simple lipoma, but a teratoma. It differed from most of the recorded cases (they are far from numerous), in not being inserted on the soft palate and in being unaccompanied by fissure of the palate or uvula. Some writers think these teratomata are associated with the primitive communication which exists between the buccal cavity and the cerebral epiphysis or the Eustachian tube; others regard them as a simple form of epignathus or included twin fœtus. Muzio does not regard either view as satisfactory, but refrains from formulating a new hypothesis.

Pinard and Varnier: Symelian Monstrosity. (*Ann. de. Gynëc.*, xlviii., 146, August, 1897.)

At a recent meeting of the Paris Academy of Medicine, Pinard showed a symelian fœtus which had been investigated by means of the Röntgen rays. It was the offspring of a twenty-seven year old primipara with an unimportant family history. In the labor, which was at full term, it was noted that the presentation was a breech and that there was no anus. Something like a penis without a scrotum was felt. Expulsion took place without assistance and the infant breathed for a few seconds. The placenta weighed

680 grammes, but was otherwise normal. The infant, forty-nine cms. long and 2500 grammes in weight, was a typical symelian; the lower limbs were strongly rotated outwards and fused together by their postero-external surfaces; they terminated in two feet, free in their anterior portion, and each provided with five well formed toes; the palmar surfaces of the feet looked forward and inward, the dorsal backward and outwards. There was no trace of genital organs on the ventral surface of the body; on the dorsal there was no sign of any intergluteal groove, but in the middle line near the tip of the sacrum was a slight depression in the skin, and two finger-breadths below this was a cutaneo-mucous orifice, to the lower margin of which a sort of blighted penis with a mucous groove on its upper surface was attached. The trunk, upper limbs and head showed no evident anomalies. By the employment of the Röntgen rays it was seen that the fused legs contained only one bone in each, the tibia. The femora appeared normal and the pelvis seemed little developed and as if compressed in its anterior arch. Between the two astragali was a median nucleus, probably due to the fusion of the two bones of the heel; this was the only point at which there was osseous union, elsewhere it was between the soft parts. [No information is forthcoming regarding a very important point, the structure of the umbilical cord.—J. W. B.]

H. Spencer, (*Trans. Obst. Soc., Lond.*, 1896, xxxviii., 118), also exhibited a skiagram of a sireniform monster very closely resembling the specimen of Pinard and Varnier. In his case, however, the fibulæ were present. They were internal to the tibiæ on account of the outward rotation of the limbs. The feet showed only nine digits. Spencer commented also on the value of the new photography in the demonstration of the osseous system of terata.

Auché, B., and Bouyer: Simple Dextrocardia Without General Inversion of the Viscera. (*Journ. de Méd. de Bordeaux*, xxvii., 413, August 22, 1897.)

Cases of partial heterotaxy or visceral inversion in which only the heart is transposed, are very rare occurrences; it is even doubtful whether such have ever been demonstrated *post mortem*. The case reported by Auché and Bouyer is, so far as clinical evidence can be trusted, an instance of simple congenital dextrocardia without the transposition of any of the other organs. The patient, a man of forty-two years, who had been in the army (where curiously enough his anomaly does not seem to have been observed), had enjoyed good health save for intermittent dyspeptic attacks. Latterly, however, he had shown distinct signs of phthisis and had also been treated for œsophageal constriction. There were no signs of pleurisy such as might have caused cardiac displacement, and the transposition of the heart was exact and complete and not hap-hazard as is seen in displacement from disease. The organ occupied exactly the position on the right side of the chest which it ought to have done on the left, the apex beat was in the fourth intercostal space, a little outside the right mammillary line, etc. The heart sounds were normal. There was dilation of the stomach, but both this viscus and all the other abdominal organs occupied their normal position.

Bilhant, M.: A Case of Congenital Genu Recurvatum. (*Annales de Chir. et d'Orthopēdie*, x., No. 9, 1897.)

M. Bilhant has had the opportunity of re-examining a patient with genu recurvatum seen originally by him ten years ago. It was the case of a new-born male infant, whose left leg, a little smaller than the right, formed with the thigh an angle open to the front; the patellar projection was replaced by a depression, and at this spot there was a tranverse furrow and the skin was wrinkled. In order to straighten the limb the leg had to be brought from before backwards instead of from behind forwards. The patella could be felt with difficulty as it lay in the groove formed by the abnormal inclination of the tibia forwards. The popliteal space was represented by a smooth surface of skin, under which, however, the popliteal artery could be felt pulsating. There was a certain degree of dislocation forward of the head of the tibia. Bilhant at once replaced the dislocation and fixed the leg in an attitude of as complete flexion as possible; the fixation was renewed every week for two months. Now after ten years Bilhant has had an opportunity of seeing the result of his early treatment and finds it to be quite satisfactory. As to the cause of the malformation it has to be noted that the labor of which this infant was the product was almost entirely dry. This absence of the liquor amnii was also shown by the fact that in her pregnancy the mother noticed that her abdomen was smaller than usual, that the fœtal movements were very marked, and that the irregular shape of the uterus during the fœtal movements was quite evident to her. Bilhant, therefore, regards the genu recurvatum in this case as due to insufficience of the liquor amnii, and the complete usefulness of the joint which the boy now has he ascribes to the early period at which the treatment was carried out.

24 MELVILLE STREET.

Memoir.

JOSEPH O'DWYER, M.D.

BY W. P. NORTHRUP, M.D.,

Visiting Physician, New York Foundling Hospital.

Dr. Joseph O'Dwyer, the inventor of intubation, was born in Cleveland, Ohio, October 12th, 1841, and died in New York, January 7th, 1898. His boyhood was spent in Canada, near London. In that city he went to school and in mature years began his preliminary medical studies with Dr. Anderson, his preceptor. He came to New York in 1864, graduating at the College of Physicians and Surgeons, in 1866.

At this time the interne staff of Charity Hospital was made distinct from that of Bellevue Hospital, and Dr. O'Dwyer was on the first staff appointed. During his service the city was visited with cholera, and Dr. O'Dwyer was selected to take charge of the fever hospital located upon Blackwell's Island. The commissioners trusted him to take entire charge and act in accord with his own judgment in his isolated quarantine. Subsequently typhus fever broke out and from a patient in the penitentiary Dr. O'Dwyer contracted the disease himself. His recovery was complete, without any sequelæ. His memory was always vividly clear concerning the onset of the typhus, its excruciating head and back pains and initial symptoms. The fatality among the patients was great; he fully expected to die, made all preparations for disposal of his effects and went to bed.

In 1868-'69 he became examiner and distributer of all patients applying for admission to the hospitals of the department of Charities and Correction. In this position he was allowed to hold physical diagnosis classes and always afterwards referred with pleasure to this work. At this time also he opened an office on Second Avenue and Fifty-fifth Street.

In the spring of 1872 Dr. O'Dwyer moved to Lexington Avenue near Sixty-fifth Street, where many of our readers first knew him. In 1873 the New York Foundling Asylum opened its new building in his neighborhood and his connection with it began at that time—twenty-five years ago.

In 1880 Dr. O'Dwyer began, as it has been expressed, "thinking on intubation." It was not, however, for five years more that the general public learned this fact. The readers of the *Archives* are familiar with the facts of the *Evolution of Intubation* as given by the inventor himself.*

His own estimate was that Intubation for chronic stenosis would in time be considered quite as valuable, if not more valuable, than Intubation for acute stenosis.

All problems connected with respiration and laryngeal stenosis were especially interesting to Dr. O'Dwyer. During his last months he placed an inflating apparatus in the Presbyterian Hospital which was designed to aid pneumonia patients in respiration, pratically administering oxygen in atmospheric air.

Dr. O'Dwyer was an excellent teacher, though teaching wore upon his strength very much. For a few years he taught intubation in the Post Graduate Medical School and Hospital, and ater gave a short course in the Bellevue Hospital Medical College. He was one of the consulting staff to Willard Parker Hospital before the appointment of the present visiting staff, and the president of the American Pediatric Society in 1896. At the time of his death he was Attending Physician to St. Vincent's Hospital and the Foundling Hospital. In the latter institution he was teacher of the younger men, the expert obstetrician and intubationist, and the indespensable medical and business adviser of the Sisters of Charity. Few men know that Dr. O'Dwyer had an experience of over 3,000 confinements (including miscarriages) in private practice.

Dr. O'Dwyer was a devout Roman Catholic. He was a fond father, having four sons, and for the last ten years of life a constant mourner of his dead wife. He was a retiring, diffident man. The only times I have ever seen him irritated and impatient were when someone urged him to lecture or read an address or paper. His answer was "Now you know that if I promise, it will spoil my sleep."

When he began to think on Intubation he began to lie awake nights. Soon after Intubation was given to the public, his wife died; then followed the long fight over Intubation—its anxieties in practice, the interruptions to night's rest, and more than all else, the discussion and opposition of writers who obviously had misapprehended the prominent points and whose judicial capacity was in inverse proportion to the out-cry they were making. "Sleep, sleep, if I could only sleep" was his one wail.

---

*Archives of Pediatrics, June, 1896. A portrait of Dr. O'Dwyer will be found in the same number.

Gradually his endurance became less, his steps dragged. Poor sleep, ten years without an out-of-town vacation, told upon him, and early in November it was certain that Dr. O'Dwyer was breaking down. In the first week in December thrombosis of certain cerebellar arteries took place and five weeks later death ensued from secondary meningitis.

I can no more fittingly express my appreciation of Dr. O'Dwyer than by relating the following incident: A stranger among a small group sidled up to me and whispered. At that moment a chance pause in all conversation exposed him. "Yes," I replied loudly, "that is O'Dwyer, the intubation-man, but," I added, "intubation is the least of his virtues."

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

FEBRUARY, 1898.

Edited by FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician, Hospital for Scarlet Fever and Diphtheria; Consulting Physician, Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241–243 WEST 23D STREET, NEW YORK.

MENINGITIS.

Meningitis is one of the diseases in which decided advancement has been made during recent years. This must be credited largely to bacteriology. Bacteriological studies have led strongly to the belief that meningitis in all its phases is an infectious disease. There is an undoubted tendency in some departments of medicine to the subdivision and multiplication of diseases. This tendency, however, is not universal, for bacteriological investigation has in several instances led to the exact reverse, in showing that conditions, which have heretofore been considered as separate entities, are due to a single cause and are, in fact, but different manifestations of the same disease.

This is notably true of meningitis. According to the older classifications, the varieties of this disease were numerous and very confusing. It was quite impossible in many cases to distinguish clinically between the various forms described in the textbooks. Study of the micro-organisms found in these various forms have pointed more and more strongly to the fact of their unity, until, in the most recent works upon pediatrics and neurology, all varieties of meningitis are classed under a single heading.

One of the most recent monographs on diseases of the meninges, that of Collins in the "Twentieth Century Practice," considers all diseases of the pia mater under the single heading of meningitis. He classifies the active exciting causes as follows:

1. Traumatic and infectious.
2. Contagious and infectious.
3. Infectious. Metastic.

Under the first of these groups belong all cases in which pathogenic bacteria have gained admission to the body through wounds, injuries, or simple abrasions. The author affirms that it is entirely within the bounds of truth to say that in every case of traumatic meningitis that comes to autopsy there will be found some bacterial organism to explain the occurrence of the disease. The second group includes all those cases which develop in connection with pyogenic disease of adjacent structures and cavities, such as the mastoid and middle ear and even organs as far removed as the tonsils. Under the third heading are included those cases of meningitis which are secondary to other infectious diseases, notably pneumonia, typhoid fever, cholera, dysentery, and influenza.

Holt is but little less positive in his belief in the infectious nature of inflammation of the pia mater, or leptomeningitis. He classifies the disease as follows:

1. It occurs epidemically. It is then usually associated with the same process in the cord, and is known as cerebro-spinal meningitis.

2. It occurs sporadically as a primary disease, with symptoms and lesions which may be identical with those seen in the first group of cases.

3. It occurs as a secondary disease, complicating other acute infectious diseases.

"At the present time," he says, "we are not able to separate absolutely these three groups by the clinical symptoms, the pathological findings, or even by a bacteriological study of the micro-organisms which are concerned in this process."

It would seem at present to be the consensus of opinion that cerebral meningitis and cerebro-spinal meningitis differ simply in the extent of pia mater involved and are not pathologically different diseases.

THE BACTERIOLOGY OF MENINGITIS.

It cannot be said that the bacteriology of meningitis is yet fully settled. No specific bacterium has yet been with certainty demonstrated. This fact, however, does not disprove belief in the infectious nature of the disease. No specific germ has been discovered in several undoubtedly infectious diseases, notably scarlet fever and measles. Neither does the fact that a single specific germ has not been discovered invalidate the belief. Several diseases are known to be caused by a number of different germs. This is notably true of pneumonia, which may be caused by pneumococci, streptococci, and several other organisms. It is likewise true that meningitis may be caused by several different forms of bacteria.

Dr. Collins, in the article already referred to, is very positive in his belief as to the infectious nature of all forms of meningitis, and expresses the opinion that the time has come to classify it according to its bacterial cause. He divides true meningitis into three varieties: Leptomeningitis, cerebro-spinal meningitis, and tuberculous meningitis. In the first of these groups, bacteriological examinations reveal the presence of some pyogenous organism. Of these, the pneumococcus, the streptococcus pyogenes, and the diplococcus pyogenes are the most common.

In cerebro-spinal meningitis, differences of opinion still exist. The micro-organism most frequently found is the pneumococcus. This germ has been found in both epidemic and sporadic cases in pure culture, and some authorities are inclined to regard it as the characteristic germ of the disease. The most recent German teaching attributes much to the diplococcus intracellularis, so-called because it is found within the body of the cells. This germ closely resembles the diplococcus of pneumonia, and bacteriologists do not yet seem positive as to the exact relationship of the two. It cannot be said that the question is yet settled.

Tuberculous meningitis is, of course, due primarily to the bacillus of tuberculosis. It is, however, very frequently accompanied by pyogeneous germs, thus resulting in a mixed infection.

Other causes, such as unhygienic conditions and exposure to wet and cold, are undoubtedly concerned in the production of meningitis. But, as in all infectious diseases, they must be looked upon as simply predisposing to the disease and not as the actual exciting cause.

It will be observed that certain forms of so-called meningitis have not been referred to in these remarks. These are cases of false meningitis marked by a dropsical condition of the brain and meninges. The condition of this nature which sometimes appears in infants suffering from marasmus or wasting diseases, and the so-called wet-brain of drunkards, are the most common forms of pseudo-meningitis.

CEREBRO-SPINAL MENINGITIS.

Cerebro-spinal meningitis has been the subject of much controversy. Unfortunately American physicians have had greater experience with it than have the medical men of Europe, as it has been more prevalent in this country. Epidemics of greater or less territorial extent have occurred since 1806. Since 1860 certain localities have been several times visited by the disease, and in several cities it has become permanently established, so that the health reports show a few cases nearly every week. It appears in an epidemic and sporadic form, but recent investigations demonstrate that the lesions, as well as the symptoms, are identical in both. The same micro-organisms also occur in both. Weichselbaum asserts that the diplococcus intracellularis is the exciting cause of the epidemic form, but it may be complicated by the presence of other germs. In the sporadic form of the disease, however, it is not asserted that this diplococcus is found, but rather the common germs of purulent meningitis, particularly the pneumococcus.

It is the belief of some authorities that cerebro-spinal meningitis is a specific infectious fever with local manifestations in the meninges. This ground was taken many years ago by Dr. J. Lewis Smith, who described the disease under the title of cerebro-spinal fever. Several other authors have accepted this belief, but few have adopted the term proposed by Dr. Smith. While there are some excellent grounds for argument in favor of this proposition, it is not the belief of recent authorities that these arguments are sufficiently strong to warrant them in placing the disease among the specific infectious fevers. Although it is unquestionably due to certain specific micro-organisms, in its clinical manifestations and pathology, it is a meningitis. It does not differ pathologically from other forms of leptomeningitis, the extent of the pia mater involved being not even characteristic.

It would seem wiser, therefore, not to multiply diseases by assigning to cerebro-spinal meningitis a separate position under the general infectious diseases and applying to it the name of cerebro-spinal fever. In its clinical manifestations it is nothing more nor less than meningitis, and the pathologist finds nothing sufficiently characteristic to warrant its being considered as anything different.

The Hospital for Scarlet Fever and Diphtheria in New York was opened on December 30th. It is intended for pay patients, and is situated at the foot of East Sixteenth Street, facing the East River. The hospital is a private corporation, controlled by its own board of governors, and is not connected with any other institution. The President of the Board of Health and one of the Health Commissioners are *ex-officio* members of the board. The charges for rooms will be from thirty to fifty dollars a week, nursing and services of resident physican being included.

Patients may be attended by their own physicians, if it is so desired. Patients intended for the hospital are not permitted to be removed from their apartments until the hospital authorities have been notified and the requirements of the Board of Health complied with. The hospital has its own ambulance and coupé service.

The visiting physicians are: Drs. L. Emmett Holt, W. H. Katzenbach, George M. Swift, Floyd M. Crandall, W. K. Draper, and R. J. Carlisle. The consulting physicians are: Drs. E. G. Janeway, A. Jacobi, W. H. Draper, R. H. Derby, F. P. Kinnicutt, A. A. Smith, and J. W. Brannan. Consulting laryngologist: Dr. H. H. Curtis. Resident physician: Dr. E. L. Dow.

A new journal devoted to the diseases of children has been established by Dr. Comby. It is published in Paris and is entitled *Archives de Medecine des Infants.* It will be issued monthly. Among those connected with the editorial management are Drs. Lannelongue, Sevestre, Hutiner, Grancher, Moizard, Brun, and Marfan.

Numerous changes have recently been made in the staff of the Randall's Island Hospitals. The institutions under the supervision of the medical staff are the Infants' Hospital, the Children's Hospital, the School for Feeble-Minded, and the Idiot Asylum. Recent appointments are as follows: Consulting physicians, Dr. L. Emmett Holt, Dr. Henry D. Chapin, Dr. Floyd M. Crandall; pathologists, Dr. Henry Koplik, Dr. Martha Wollstein; visiting physicians, Dr. Walter L. Carr and Dr. L. Duncan Bulkley.

A State Pediatric Society, for Indiana, was organized on December 28, 1897. The matter had been for some time under contemplation by a number of physicians of that state interested in diseases of children, and the organization was effected after much deliberation and consultation with members of other pediatric societies. Being thus a well considered movement, it gives promise of a very successful future.

The first meeting will be held at Evansville on the day preceding the meeting of the State Medical Society in May. The Society contemplates the presentation of its work to the State Society in the form of a summary.

The following officers were elected: President, Paul J. Barcus, M.D., Crawfordsville; Vice-President, John A. Lambert, M.D., Indianapolis; Secretary, Louis Busckhardt, M.D., Indianapolis; Treasurer, Don Kennedy, M.D., Homer.

Children's Playgrounds.—It is commendable in this day of hygienic advancement to note that the public schools of the cities are giving attention to the playgrounds attached to these institutions. New York, in her recent school architecture has considered this very important adjunct, but necessarily the grounds are limited, and the children at play are but congested masses of humanity. The playground is a factor in education which must not be overlooked. Tsanoff, the Secretary of the Culture Extension League, says: "The playgrounds stimulate and guide life in a way that nothing else can do. Their relation to the development of character is very similar to that which the school bears toward the development of mind. In fact, the collective play of the children has a greater influence in forming habits of personal and social conduct of life than has school or even home instruction and advices. Many practical questions, for the solution of which we have been looking to the school, the home or the church, will be found belonging to the playground to solve. The time is coming when the playgrounds will be as seriously considered in the education of the young as the schools are to-day."

The physician has a part in the encouragement of playground extension. Let him observe the freedom with which the little folks take to the ennobling influence of play, and watch the health accruing to these little ones, and he will at once realize the importance of the playground from the standpoint of health. The "hot-house" child is always a delicate creature, but the child who is free to enjoy the open air is, as a rule, healthy. School hours will lose their oppression when the recess will mean more than a ten-minutes' break in school routine. The recess should be long enough to permit of exercise, play and a general good time. The playground must be maintained and extended.—*Medical Fortnightly.*

Bibliography.

The Surgical Diseases of Children. By Edmund Owen, M.B., F.R.C.S., *Senior Surgeon to the Hospital for Sick Children, Great Ormond Street; Senior Surgeon to, and Lecturer on Surgery at St. Mary's Hospital, London; Member of the Court of Examiners of the Royal College of Surgeons of England.* Illustrated by five Chromo-lithographs and 120 Engravings. Third Edition, Revised and Enlarged. London: Cassell & Co., 1897. Pp. xiv., 504. Price, 21s.

The third edition of this excellent work does not require extensive mention in these pages, in which former editions have been reviewed at length. The work is recognized as one of the best upon the surgical diseases of children. The new edition has brought it fully abreast of the times and will maintain it in the position attained by the earlier editions. It is one of the most practical of books, the portion devoted to treatment and surgical procedures being particularly satisfactory.

The author confines himself well to the subject and does not frequently wander into general surgery and does not devote undue space to subjects which strictly belong to orthopedic surgery. Rickets and rhachitic deformities receive extended attention, as do, also, deformities resulting from various forms of paralysis. Tumors and abnormal growths of all kinds are also considered in a very thorough manner. Congenital deformities of every variety receive due attention, while diseases of the bones and joints are discussed in a particularly thorough manner.

The Care and Feeding of Children, A Catechism for the Use of Mothers and Nurses. By L. Emmett Holt, M.D., *Professor of the Diseases of Children in the New York Polyclinic, Attending Physician to the Babies' Hospital and the Nursery and Child's Hospital, New York.* Second Edition, Revised and Enlarged. New York: D. Appleton & Co. 1897. Pp. viii., 104. Price, 50 cents.

The second edition of this admirable little book is one of the best nursery guides with which we are acquainted. Many additions have been made in the sections on clothing, growth, and training, and the chapter upon feeding has been entirely rewritten and is quite different from that of the first edition. This change was rendered almost necessary by the increasing importance which is being attached to exactness in infant feeding. The present chapter is based upon the principle of percentage feeding. While far greater exactness is attained than has hitherto been attempted in books of this character, the work is so simple and easy of comprehension that it can be understood by the most ordinary nurse. Everything, in fact, is done by the author, no figuring or calculating being required by the one who is preparing the food.

Although originally designed as a text-book for the training school for nursery maids at the Babies' Hospital, the book has been very largely used as a nursery guide and has also been much used by physicians in food prescribing. While the present edition will fulfil equally well the first two purposes, it will prove of much greater aid to the practitioner than did the first edition. He will find in tabulated form, requiring no work upon his part, instructions for making up a large number of combinations based upon percentages.

The chapter on the changes in the food required by special symptoms or conditions, is a particularly helpful one, as is that, also, upon feeding during the second and third years. Though small and compact, the book is an admirable and perfectly reliable guide upon infant feeding, and many matters connected with nursery management and care of children.

Tannin and its Derivatives in Infantile Diarrhœa.—Comby (*Médecine Moderne*) has given tannin and its derivatives, tannigen and tannalbin, a prolonged trial in the treatment of infantile diarrhœa. Powdered tannin is unsatisfactory, as it gives rise to pain and vomiting, and does not check diarrhœa. Tannigen and tannalbin are compounds which are broken up in the intestine with the liberation of nascent tannin; this has the advantage that the stomach escapes the astringent action of pure tannin. Comby has given tannigen and tannalbin with very satisfactory results in the simple non-infective diarrhœa of children. Not being intestinal antiseptics, they are not adapted for cases of cholera infantum, and should then be combined with calomel or some other antiseptic. Tannigen and tannalbin are tasteless, and may be given for days or weeks without untoward results in quantities of 0.5 gr. to 1.5 gr. in the day, according to the age of the child, this quantity being divided into three or four doses. —*British Medical Journal.*

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, December 9, 1897.

J. HENRY FRUITNIGHT, M.D., CHAIRMAN.

SUBPERIOSTEAL NODES OF THE CRANIUM.

DR. W. A. DUNCKEL presented for diagnosis a girl of six years, having certain hard nodes on the head. Her family and personal history were good, and the nodes had been first noticed by the mother last September. These nodes vary in size from a pin-head to that of a pea, are raised above the surrounding skin about one-sixteenth of an inch, are excessively hard, and are not arranged with any special reference to the sutures. When seen first by Dr. Dunckel, in October, the post-cervical glands were also enlarged and movable, but were not painful. The only node not located on the skull was one at the junction of the mucous membrane of the lip and gum. The report of the pathologist, Dr. George P. Biggs, stated that the nodes consisted of fibrous and adipose tissue, and contained a few areas of small round cells, indicative of inflammation. The child had also exhibited recently on the skin of the wrist and arm a few concentric rings of a violaceous hue, which Dr. George T. Elliott had diagnosticated as erythema iris.

DR. A. CAILLÉ considered the case one of rheumatic nodes—a not very uncommon condition in children, although the nodes were ordinarily found about the wrists.

DR. SIGMUND POLLITZER expressed the same opinion, and added this diagnosis was further strengthened by the occurrence of the skin affection, as the latter was frequently observed in rheumatic individuals.

FAVUS OF THE EYELID.

DR. E. LIBMAN presented a boy of eight years, having favus only on the eyelid. The occurrence of favus on other parts of the body than the scalp without affecting the latter, he said, was quite rare; he had been able to find only fifty such cases on record. The diagnosis in the case presented was confirmed by the microscope.

Dr. F. J. Leviseur took exception to the statement regarding the rarity of favus of the body; the apparent rarity was because these cases were not often reported. The special feature of interest in this patient was the existence of a perfectly formed scutelum. He favored treating the case by thorough epilation and the application of some antiseptic ointment.

Dr. W. S. Gottheil could recall having seen only one case of favus of the body in a native-born American. Epilation was of such importance, that it should be made the first step in the treatment.

SCLEREMA NEONATORUM.

Dr. Libman also presented a baby of six weeks, also a patient from Dr. Koplik's service. The infant had been asphyxiated at birth, and had been vigorously slapped to restore respiration. The hardness of the buttocks was not noticed until ten days afterward. When the baby first came under observation it had a temperature of 99° F. The indurated area spread very rapidly, involving, in the course of a few days, the axillæ and calves. These areas were now returning to the normal.

Dr. Libman stated that these cases could be classified in two groups, viz.: (1) Those occurring towards the close of a gastroenteritis or other exhausting disease; and (2) those occurring in premature or syphilitic infants, or those having pulmonary atalectasis at birth. In the latter class, the skin was blue and alabaster-like, and was, to a certain extent, movable on the subjacent tissues. The disease is rarely congenital, being not commonly noticed before the eighth day. In view of the comparative frequency of reports of such cases in foreign countries he had been surprised to find only eight cases recorded in this country.

Dr. W. S. Gottheil had never met with such a case in this country. He was especially interested in the one just presented because, contrary to the usual rule, it was progressing towards recovery.

Dr. S. Pollitzer said that the chief point of difference between cases of œdema and true sclerema was the peculiar hardness of the latter.

Dr. W. L. Stowell said that he had seen three cases, two of which had terminated fatally. The third case was that of a little boy, presenting sclerema of the muscles of the neck and chest. He completely recovered at the end of a year. The treatment had consisted in the use of mercurial inunctions for a short time, and afterwards of general tonics.

CONGENITAL CRETINISM.

Dr. Emily Lewi presented a brother and sister to illustrate the better effect obtained in the treatment of cretinism in cases coming under observation at an early stage. The boy had been under constant observation and treatment since the age of fifteen months, yet it was still impossible to discontinue the thyroid without a return of all the old symptoms. His infant sister had been treated since five weeks old, and was already in better condition than the boy. The latter received two and a half grains of extract of thyroid, twice a day; the girl received half a grain, three times a day.

Dr. H. Koplik remarked that he had tried iodothyrin, but had not obtained as good results with it as with the powdered thyroid.

A PORTABLE DRY BED FOR INFANTS.

Dr. Louis Fischer exhibited a "dry bed" designed by Kraut, of Munich, for the purpose of keeping children dry in bed, and avoiding irritation of the skin. The bed consists of a rattan frame, on which the baby lies, with an intervening mattress. Below this is a compartment in the bed which hold a rubber bag or urinal. The latter terminates in a funnel-shaped piece of rubber, which passes through a central opening in the bed and bedding, and spreads out under the buttocks of the infant. The child is held in place by a sort of corset. The speaker said that he had been watching an infant in this bed, and had come to the conclusion that the inventor's claim, that it prevented intertrigo, was true.

Dr. T. S. Southworth remarked that the bed ought to prove useful in collecting urine for analysis.

Dr. J. M. Mabbott thought the contact of the baby's body with the wet rubber would be apt to irritate the genitals.

Dr. W. L. Stowell saw a field of usefulness for the bed in cases of extrophy of the bladder.

MILK POISONING OCCURRING IN INFANTS AND CHILDREN WHO HAVE BEEN FED ON PASTEURIZED MILK—PASTEURIZED MILK AS A FOOD FOR INFANTS AND CHILDREN.

DR. HENRY KOPLIK read a paper with this title. He said that Pasteur himself had never claimed that milk could be sterilized by the process used for liquor, but other observers, after numerous experiments had finally fixed upon a temperature of 75° as the point to which milk must be heated and kept for a certain time. These same observers also insisted that the milk must next be quickly cooled and then kept at a low temperature. Such a process would destroy most of the pathogenic germs, but that was all. It remained for Dr. Freeman to claim that all the bacteria could be destroyed by this process of pasteurization. An element of great uncertainty seemed to enter into this method of preserving milk, for Russell stated that an examination of four samples of cream that had been pasteurized showed two of them to be sterile, and two to contain a large number of bacteria six hours after milking, though collected under special precautions. It had also been discovered that the milk ducts of the cow always harbor much filth and bacteria, and that, consequently, although the milker's hands and the cow's udder may have been cleansed, and although the milk is received into a previously sterilized vessel, only the last portion of the milking will be free from bacteria. The bacteria found in milk could be conveniently divided into three main groups, viz.: (1) The lactic acid-forming group; (2) the butyric acid-forming group; and (3) the peptonizing bacteria. The first group is very active in causing gastro-intestinal disease. Sterilization at 90° to 95° C. completely destroys the lactic acid group. The last two groups are not completely destroyed by any form of sterilization below 100°.

Dr. Koplik said that in the cases described by him as "milk poisoning," the first symptom would be the occurrence of too frequent and ill-smelling stools. A number of cases were cited in which infants had developed diarrhœa while on pasteurized milk, and had quickly recovered on substituting sterilized milk. Dr. Lewi had shown in 1895 that if milk were pasteurized in the Freeman apparatus and kept at 28° C., it would become acid in a few hours, and curdled in twenty-four hours. Milk for infant feeding should be heated to 100° C. for ten minutes, then rapidly cooled, and finally kept at a temperature below 20° C. until used. In this way the peptonizing bacteria would be made inert. It had been objected that the high heat of sterilization rendered the milk more difficult of digestion, but this statement had not been verified by years of observation. In conclusion, the reader of the paper expressed the opinion that pasteurized milk is an uncertain and, in some cases, a very dangerous food for infants.

DR. A. CAILLÉ expressed his surprise at finding that the cases quoted in the paper were exactly like many that he had met with in his own practice, both hospital and private.

DR. W. L. CARR said that soon after beginning the use of sterilized milk he had found that the process unfavorably affected the digestibility of the milk for many individuals, and that nutrition of infants would become impaired thereby. He had accordingly been prepared to favorably receive the process of pasteurizing milk, but this, too, had proved disappointing. He had repeatedly noted improvement on stopping pasteurization and substituting for it sterilization, without any other change.

DR. ROWLAND G. FREEMAN said that the frequent opportunities for contaminating the milk during its transit from the dairy to the consumer, made it imperative that the milk should be subjected to some process that would destroy possible pathogenic bacteria. Many in the medical profession thought that the long-continued use of boiled milk was injurious, and that in some instances it had even been responsible for the occurrence of scurvy. For these reasons his own efforts had been directed towards destroying pathogenic bacteria by the lowest possible temperature, and his experiments and observations had led him to recently advocate subjecting the milk to a temperature of 140° F. to 158° F. for half an hour. This was sufficient to destroy the bacillus of tuberculosis and the specific organisms of other common diseases. It should be remembered that milk was not rendered absolutely sterile by a single ordinary boiling. To accomplish that the milk must be boiled under considerable pressure, or else boiled daily for several days in succession. In his own experiments he had not found many bacteria in the milk ducts of the cow. In criticising pasteurization of milk, one should be sure that the milk had been properly pasteurized and kept at a proper temperature afterward. In his laboratory he had often found that bottles of pasteurized milk left on the table at the ordinary temperature, did not show a precipitation of casein for two or three days, and that if kept in the refrigerator they would often keep well for eight or ten days. His experience with pasteurized milk, when properly prepared, had been entirely at variance with that already given this evening. If such cases of illness occur, they must be so rare as hardly to offset the advantages to be derived from pasteurization.

DR. HENRY D. CHAPIN said that he did not think the reader of the paper had succeeded in making a very strong case, clinically, against pasteurized milk. He had often noticed that babies fed on sterilized milk became thin, and he had attributed this to the destruction of the naturally fine emulsion to be found in milk through the agency of a high temperature. Large globules of fat would often be seen on the milk in the sterilizer. He believed that future advance in infant feeding would be in the direction of procuring fresh and clean milk; certainly as a universal method of treating milk, sterilization did not seem to him to be in the line of progress.

DR. S. H. DESSAU was of the opinion that raising the temperature of milk to a certain point tended to favor rather than to retard its digestion. For a number of years past he had used with great satisfaction the ordinary double kettle, to be found in most kitchens. He directed that the milk should remain in this for ten minutes after the water in the outer boiler had begun to boil, and that then it should be quickly cooled, and kept in a cool place.

DR. CHARLES G. KERLEY said that from 1888 to 1892 a large number of the infants at the Mount Vernon Infant Asylum had been fed on milk that had been sterilized at 212° F. for half an hour. Since then the children at this institution had been chiefly fed on pasteurized milk. From such a comparative study he had come to the conclusion that pasteurized milk was decidedly the better. He agreed with Dr. Chapin that future progress would be in the direction of securing fresh and clean milk that had not been subjected to any artificial elevation of temperature.

DR. J. MILTON MABBOTT said that a study of the mortality rate in the Nursery and Child's Hospital for the past twelve years showed such slight variations that it was difficult to make any definite assertion regarding the various methods of infant feeding that had been employed there. During the first part of this period it had been the custom to use raw milk; then all the milk was sterilized; and still more recently, almost all of the milk had been pasteurized.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Meeting of November 9, 1897.

J. P. CROZER GRIFFITH, M.D., PRESIDENT.

THE TREATMENT OF ACUTE INTUSSUSCEPTION IN INFANTS FROM THE STANDPOINT OF A PHYSICIAN.

FREDERICK A. PACKARD, in a paper on this subject, said that intussusception (aside from the agonal form) was an extremely rare affection. He reported a case from the Children's Hospital of Philadelphia, the patient being a female infant, aged eight months, seen on the fifth day of the disease. The dangers of using injections after the third day of the disease and of employing too high a pressure at any time were dwelt upon, examples being quoted from literature. It was recommended that injections should not be used after the third day except as the preliminary step of a possible immediate laparotomy, and that the reservoir of the injection apparatus be held at a height of three feet at the outset, to be gradually elevated to eight feet, but never to exceed the latter point.

THE SURGICAL TREATMENT OF INTUSSUSCEPTION.

DR. EDWARD MARTIN said that cases of intussusception are perhaps best classified under Raffinesque's system as ultra-acute, death taking place in the first twenty-four hours; acute, terminating between the first and seventh day; and sub-acute, lasting two weeks or upward. After discussing the etiology and pathology of intussusception, Dr. Martin stated that he has been particularly impressed with the extreme rarity of intussusception. It is usually regarded as a common affection of childhood. As far as he has been able to discover, but one case has ever been treated at the Children's Hospital of Philadelphia. Examinations of records of other institutions reveal a similar paucity of material.

Eight hundred personal letters sent out with stamped envelopes to return, brought Dr. Martin only fifty-four cases. The great majority of these letters were answered. Men of the widest experience both in medicine, surgery, and in pediatrics, stated that they had never seen a case. His purpose in sending these letters was not primarily to demonstrate the rarity of intussusception, but rather to demonstrate its true mortality. There is a natural tendency to report only successful cases, and believing that this rendered entirely inaccurate statistics compiled from general records, he started a personal investigation, confidently expecting to have several hundred cases from which could be drawn reliable conclusions. All the statistics showed that intussusception in children is most frequent about the sixth month, that after the fifth year it becomes comparatively rare until the fortieth or fiftieth year, when it again increases in frequency of occurrence. In the first year of life the ileo-cæcal form is more common than the combined form of all the others, the ileal invagination being exceedingly rare. When the ileum is involved it is usually in its lower segment. Intussusception of the colon is commonly found in the sigmoid flexure. The acute form in infants is characterized by a painful onset, commonly in the ileo-cæcal or umbilical region.

Many cases of intussusception are not recognized. It is probable that examination under ether will show a tumor in practically all cases. The prognosis of intussusception is extremely grave. Leichtenstern places the general mortality at 73 per cent. In 73 cases collected by Hare and Martin the mortality was 30 per cent.; in the first year of life the mortality is much higher, reaching 80 per cent.; death ensues commonly between the fourth and seventh days.

The methods of treatment to be considered are massage, rectal injections, and reduction of invagination through an abdominal opening. Though massage has successful cases credited to it, it is at best a blind and usually futile measure and one likely to do more harm than good. Injections are of incontestable value and in so far as statistical study goes have been nearly as successful as has abdominal section. Injections of liquid aside from direct surgical interference, afford the most efficient means of reducing invagination. The liquid of choice should be normal salt solution at a temperature of 102° F. As a result of experimentation Hare and Martin found that by a pressure of 1½ pounds, warm normal saline solution could be passed from the rectum into the stomach of a dog without interfering with its final functions in the slightest degree, without being followed by any impairment in digestion or general health. A cold solution produced marked and immediate shock, was much slower in going through, and left the dog sick for some hours. The hot injections at 116° F. caused death from heat-stroke.

As to the method of giving forced injection, this should be so directed that the pressure of the fluid should be gradual, steady and progressive. The child should be wrapped in cotton, should be thoroughly relaxed with ether, and by means of a fountain syringe normal saline solution at a temperature of 105° should be allowed to flow into the rectum at the rate of about four ounces to a minute, under a pressure at first not over two pounds to the inch, obtained by elevating the irrigating bag four feet above the level of the anus. The liquid is prevented from regurgitating by a shoulder made upon the injection pipe, by wrapping it with a narrow bandage. This treatment should be continued for not less than fifteen nor more than thirty minutes, the bag being gradually raised to a height not greater than eight feet, and the abdomen being kneaded during the treatment. For an infant, not more than three pints of fluid should be employed and before making this attempt at disinvagination all preparations for abdominal section should be made. When injection fails, immediate coeliotomy is indicated. The median incision is best. There has never been any trouble in finding intussusception. The first effort should be directed toward accomplishing disinvagination. This is best attained by stripping back the intussuscipions. In case of failure the modified Maunsell method is the one of choice. This consists in making a longitudinal incision in the intussusceptum, delivering through this the entering and returning folds of the intussuscipions, removing the greater part of the tumor thus formed and restoring the continuity of the intestines by suture. A further modification of this method and one which would lessen the danger of sewing the peritoneum and make only a short cut necessary in the intussuscipions, consists in seizing the neck of the tumor in a clamp or *écraseur*, cutting it away below, drawing the stump through the opening of the intussuscipions and uniting the gut, as in the Maunsell method. The separated and usually sloughing mass, should be pushed along the bowel until it reaches the rectum from which it could be delivered by forceps.

The case operated on by Dr. Martin was referred to by Dr. Charles Hoban. The child was seven months old and exhibited all the typical symptoms. Eight hours from the onset of attack one thorough trial at disinvagination by injection was made. This was followed by free fæcal evacuation, but an abdominal tumor was still felt. Abdominal section was performed immediately. The invagination was of the ileo-cæcal variety, four inches of the ileum and all of the ascending and transverse colon forming the intussuscipiens. It was reduced by a milking motion, practised with both hands. Six days later the stitches were removed, the wound had completely healed, and the belly was strapped. A violent attack of vomiting incident to a too free meal tore open the wound eight hours later.

Of the fifty-two cases collected from private sources by Dr. Martin, the average age was thirty months. Vomiting was present in 89 per cent., bloody, mucous evacuations in 87 per cent., severe pain in 83 per cent., tumor in 79 per cent. and tenesmus in 77 per cent. Two cases were subject to medical treatment alone, both resulting fatally; two cases had no treatment and both died; forty-three were subject to injections; of these fifteen were subsequently operated on. Of the twenty-eight cases not operated on but treated only by injection, sixteen recovered; of the fifteen cases operated on three recovered. These figures show how high is the mortality of operative treatment.

DR. C. J. HOBAN.—As to the differentiation between intussusception and volvulus: I have had within the last year four cases of obstruction of the bowels between the ages of seven and eighteen months; two were cases of intussusception and one hernia through the omentum. The characteristic of the intussusception is the bloody mucus, that did not occur in the cases of volvulus or omental hernia, and I think it is the most characteristic symptom of intussusception. Moreover tenesmus was great in cases of intussusception, more so than it was in volvulus; vomiting appears more quickly in volvulus than in the intussusception; in omental hernia the vomiting comes on more rapidly, possibly on account of the position of the obstruction.

DR. LE R. G. LE CONTE read a paper on "Intussusception of the Post-mortem Type Occurring During Laparotomy." While performing laparotomy for a penetrating stab wound of the abdomen in a boy aged nine, three intussusceptions of the small intestines were met with. Two were direct and the other retrograde, all having the characteristics of the post-mortem type of intussusception and none of the characteristics of the obstructive invaginations occurring during life. The recovery of the patient was uneventful.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPEDIC SURGERY.

Meeting of October 15, 1897.

A. B. JUDSON, M.D., CHAIRMAN.

CONGENITAL ABSENCE OF THE RADIUS.

DR. H. L. TAYLOR, in a paper on this subject, said the absence of imperfect development of the radius of the new-born caused the appearance of club-hand from dislocation of the carpus to the radial side. Case I. Girl, five weeks old; absence of the radii; hand at right angles with the forearm; genuvarum; mechanical treatment. The skiagraph shows the absence of the radius and the ulna shortened, thickened and bent, also the improved position of the hand at fifteen months. Case II. Girl, two weeks old; absence of the right radius and both thumbs, with their metacarpal bones. The deformity of the right hand was

SKIAGRAPH OF THE LIMB IN CASE I.

extreme. The patient lived but a few months. Case III. Boy, five weeks old; slight double radial club-hand with the radii abnormally small. The hands were kept in good position by leather splints. Case IV. Girl, two and one-half years old; absent ulna and the fourth and fifth digits with their metacarpal bones; radius thickened and bent toward the ulnar side; the hand usually turns towards the ulnar side, but is sometimes held straight; the elbow has abnormal lateral mobility and hyperextension, as might be expected from absence of the ulna. Children with deficiencies of this kind are usually premature or still-born; if alive, they seldom live many weeks. There are about two hundred recorded cases of absent fibula, and one hundred of absent radius; but the deficiency shown in Case IV., absence of the ulna, is believed to be very rare. The dimples, furrows and scar-like marks, vestiges perhaps of separated adhesions, support the theory that these defects are caused by the pressure of a contracted amnion. As rotation of the fœtal limbs is said to begin about the fifth week, if the amnion exerts pressure from the fifth to the eighth week, the radius and fibula may be blighted. If, on the other hand, the contraction takes place before the fifth week and before the rotation of the limbs, the ulna and tibia will suffer. Operations, if performed, should be preceded by mechanical treatment. Contracted structures may be divided. Osteotomy may be followed by over-correction and the ulna may in various ways be attached to the carpus in an improved position.

Dr. R. H. Sayre said that he had treated a patient affected with double congenital absence of the radius by manipulation, stretching, and retention in plaster of Paris. The hands had been brought into a fairly normal position, but the child died of cholera infantum when ten months old. In another case the ulna was so small that it hardly seemed feasible to split it for the reception of the carpus, as has been done in a reported case. He therefore fixed the ulna in a gap made in the carpus.

Dr. A. M. Phelps said we could hardly use the term club-hand in speaking of congenital absence of the radius.

Dr. A. B. Judson said that there seemed to be no affection of the hand corresponding to congenital club-foot. So-called club-hand was caused by deficiencies of the skeleton, by injuries and diseases of the bones, by cicatricial contraction, or by paralytic affections. There were also cases of club-foot originating in all of these ways, but what we know as congenital club-foot is caused by factors which are apparently not operative in the upper extremity.

A CASE OF TRAUMATIC CLUB-HAND.

Dr. Taylor exhibited a girl, eight years old, a portion of whose radius had been resected for necrosis. The radius was, in consequence, much shorter than the ulna, and the result was that the hand was thrown toward the radial side and had the appearance of a club-hand.

Dr. Phelps said that in a case of club-hand thus acquired, he would shorten the bone instead of cutting the tendons. Tendons, when divided in their sheaths, are apt to become adherent, while resection of the longer bone would in suitable cases bring the hand to a normal position.

Dr. Judson was reminded of a patient whose tibia had been shortened for disease of the bone. As the boy grew, the fibula projected to such a degree that the patient could not walk. In such cases another operation was necessary to shorten the unaffected bone.

Dr. R. Whitman was reminded of a man whose tibia had been shortened by an operation when he was thirteen years old. The result was that, when recently seen, the leg was five inches short and the foot had been forced into extreme varus by the relative overgrowth of the fibula. Bone reproduced to fill an interval left after resection, did not grow. Final results after such operations performed in childhood were usually unsatisfactory.

Dr. R. H. Sayre cited a case which showed that reproduced bone did not cease to grow. The patient had been exhibited to this section by Dr. L. A. Sayre. Four inches of the neck and head of the femur had been removed, and when the boy was twelve years old, there was only about a quarter of an inch of shortening. In some of Dr. J. R. Wood's resections of the jaw, the lower maxilla had been reproduced and had grown with the rest of the body.

Dr. Whitman said he referred to parallel bones of the extremities. Deformity was almost inevitable when a portion of one bone only is removed.

Dr. Phelps said that new bone had feeble circulation, grew less rapidly than normal bone and became very hard, as was shown when one of two parallel long bones was reproduced.

Dr. R. H. Sayre said that the vicinity of a nutrient artery would probably influence the growth of a new bone.

Treatment of Febrile Conditions in Children.—Excessive temperatures occurring in the acute infectious diseases of childhood, particularly in pneumonia, may often be successfully treated by the following formula: ℞ Lactophenini, 0. 1.; sacch. alb., 0. 3. M. Ft. pulv. no. X. S. Give one powder every three hours to a child from two to five years. For acute intestinal disease in children of from six to twelve years, marked by high temperature, the following may be used: ℞ Lactophenini, 0. 15.; bismuth. salicyl., 0. 10. M. Ft. pulv. no. VI. S. Give one powder in wafer or capsule every three hours.—*Treatment.*

Diphtheria with Unusual Complications.—Max Bjorksten (*Finska Läkaresällskapets Handlingar*) reports the case of a little girl, aged three years, who contracted diphtheria from her sister, and showed some unusual complications in the progress of the malady. The attack was a sharp one and was accompanied by œdema, hepatic enlargement, albuminura, and a systolic murmur over the cardiac apex; but after about four weeks the patient began to recover, the temperature fell, the murmur disappeared, the albuminuria and œdema diminished, and the general condition improved. Injections of anti-diphtheria serum had been given. Suddenly, however, and during the night, incontinence of urine supervened; this was followed by aphasia, right-sided hemiplegia, paralysis of the right facial nerve and of the soft palate. She ultimately recovered. The paralysis of the soft palate the author regards as due to a peripheral neuritis, but looks upon the other nervous symptoms as cerebral in origin and probably the result of an embolus.—*British Medical Journal.*

Current Literature.

HYGIENE AND THERAPEUTICS.

Murray, Braidwood, P.: Some of the Accidents Attending Vaccination. (*The Lancet.* 1897. No. 3843.)

The amount and extent of the inflammation attending vaccination varies according to the constitution and to the state of health of the person or child. From the third or fourth day after vaccination, when the vesicles begin to form, the vaccinated spots should be protected from abrasion by stitching some cotton-wool on the inside of the sleeve. Vaccination shields are in my experience very hurtful. As vaccinia finishes its course, trouble often arises through the vaccinated spots not healing rapidly. Various circumstances account for this, the most important being that the crust is rubbed off during sleep. If, then, the vaccinated spots are not protected, not only are they liable to receive surrounding impurities, but may lead to auto-inoculation. In the out-patient department of hospitals such cases are frequently met with, and the infant's mother wrongly ascribes it to the vaccine. Such impetiginous eruptions are really due to ill-health and uncleanliness, and may appear on any part of the body. A form of eczema often attacks infants' heads and likewise is ascribed to vaccinia without reason. After the vaccine has dried on the scarified spots the infant can have his usual bath, but on no account should moist applications be used over the vaccinated spots. It should be remembered, too, that the irritation of teething often accompanies vaccinia.

The principal causes of bad and unprotective vaccination are, however, ascribable to the operator—the use of lymph taken at too late a period in the course of the disease, vaccinating with lymph removed from vesicles themselves badly developed or imperfect in character, the employment of lymph too long preserved, the use of a rusty or dirty lancet, and the manner of operating so that no blood is drawn and the lymph does not reach the cutis vera. It should be borne in mind that lymph from any exhausted vesicle is imperfect in power. It is improper, too, to vaccinate with lymph removed from a vesicle after the areola has been fairly formed, and it is decidedly injurious to vaccinate with lymph which is undergoing suppurative deterioration. An occasional accident attending vaccination is erysipelas.

In order to vaccinate always successfully great attention should be paid to details, and it requires a very decided degree of technical skill, patience, and experience. This is the more important when heifer vaccine is coming into general use. Its action is stronger than that of humanized vaccine.

Wood, Casey A.: The Effect of Kindergarten Work on the Eyesight of Children. (*Chicago Medical Record.* 1897. Vol. xiii., No. 2.)

This paper is written under several headings as follows:

1. Every kindergarten and every school should be provided with certain well-known and simple tests of vision, and no child of any age should receive instruction who has not good eyesight.

2. It should be a part of the teacher's duty—in the public schools and in some private institutions the teacher is the only guardian, in any sense, that the child possesses—to note any defects of vision and have them corrected, if possible.

3. No child with uncorrected or incorrigible defects should be allowed to use his eyes for any kind of close work before he is eight or nine years of age, lest worst things befall.

4. In the kindergarten the children should be taught only those things that demand the minimum employment of the accommodation for near work. Frœbel's "gifts" are sufficiently numerous and varied to enable both teacher and children to pass happy and profitable hours without damaging the precious inheritance of vision.

5. Some kinds of instruction are in their nature unsuited for infants' eyes. The author would not allow them to engage in any kind of drawing, because the tendency always is, as with adults, to indulge more and more in elaborate designs.

6. If one turns to the plates in the back of Josephine Jarvis' translation of Frederick Frœbel's *Spiel und die Spielgegenstænde der Kinder*, or to the elaborate designs affixed to many similar text-books on kindergarten study, Mrs. Rowland Hill's *Brush Work for the Kindergarten*, for example, it will not be difficult

to eliminate those occupations and studies that are palpably inimical to the eyesight of the child.

7. Speaking broadly, Frœbel's first four "gifts," and the uses to which they are ordinarily put in the kindergarten, and the occupation to which they may give rise, are mostly devoid of harm, so far as the eyes are concerned. They also suggest many Mutter and Koselieder, the use of which in kindergarten work is so much to be commended and leaves so little to be criticised that the author sometimes questions whether with balls and blocks and the accompaniment of song and play, kindergarten children might not be made to undergo a healthier development than that which the more complex and elaborate occupations subserve.

8. Above all, he deprecates certain occupations commonly recommended by and pictured in most of the latest kindergarten text-books. These are perforating cards, embossing, fine sewing, drawing in all its forms and phases, most kinds of paper interlacing, intricate paper cutting and folding, pease work, clay modeling, chain making except where the links are very large, bead stringing, etc. These practices, however little indulged in, are almost certain to damage the eyesight of kindergarten children.

9. Among the less hurtful occupations, some of them harmless, are games not involving near work to any extent, slat interlacing with wide slats of well-contrasted colors, sand work, especially if indulged in as German children use it—out-of-doors, gardening, that Frœbel loved so well, building with large blocks, and the occasional use of simple apparatus, like Putnam's "busy work tiles."

Garrison, Harriet E.: The Belladonna Treatment of Pertussis. (*Virginia Medical Semi-Monthly.* 1897. Vol. ii., No. 7.)

After reporting several cases of pertussis treated with belladonna the author concludes that belladonna *per se* will relieve pertussis. If there is still a severe cough after giving belladonna freely, another neurotic element should be sought for. Children bear belladonna well, and it takes a proportionately larger dose to produce toxic symptoms than in adults; the younger the child, the better the belladonna relieves the kinks of pertussis.

SURGERY.

Curtis, B. Farquhar: Surgical Practice Among Children. (*Post-Graduate.* 1897. Vol. xii., No. 10.)

The author first refers to the great recuperative power which children frequently exhibit, and the strong resistance they make to prolonged suppuration. On the other hand the surgeon often meets with cases in which children succumb with unexpected ease. It is well-known that children do not bear shock and hemorrhage well, especially during the first two years of life. According to Heineke a loss of 1,500 grammes of blood in an adult is serious, and death may be expected when twice that amount has been lost; while in a child a loss of 50 grammes is serious, and hemorrhage amounting to 100 grammes may be fatal. Allowing that the body-weight of the child is one-seventh that of the adult, it will be seen that the fatal loss for the child is only one-quarter of what it should be in proportion, or in other words, the infant is four times as sensitive to loss of blood as the adult. It has been the general opinion that if children recover from a severe hemorrhage they regain their usual health quickly, but it is by no means exceptional to have chronic anæmia follow, and it seems, therefore, certain that their capacity for blood production is much less than would be supposed from the active vitality of their tissues.

In some cases, too, we observe a failure of primary union of wounds and an unusual susceptibility to septic infection, even when the children appear fairly robust.

In attempting to explain this apparent paradox, we should never forget the great demand made upon the nutritive functions of a child to supply sufficient food for the tissue constructed in its daily growth, and the consequent possibility that a slight disturbance of assimilation may produce serious malnutrition with consequent failure of union in wounds, or ready entrance of septic infection. This is especially true in the case of operations for harelip and cleft palate, which interfere with the feeding of the child, and in which a slight infection of the wounds is unavoidable. Any case which cannot be explained by the various reasons given above, may be justly charged to the inherent difference in the constitutional resisting powers of individuals, that difference which is so difficult to determine in adults, and is still more difficult to appreciate in children, even when the influences of heredity and environment are carefully weighed.

In all operations upon children shock must be avoided by speed in operating, and by avoiding cooling of the patient's body. The operation should be performed as rapidly as possible, and therefore the exact diagnosis of the case and the plan of treatment to be adopted should be determined beforehand if possible, so that there need be no necessity for delay or consultation after the anæsthetic has been administered. Loss of heat is prevented by swathing the entire body, except the field of operation, in cotton, firmly bandaged on, and by the use of hot bottles. It is well to keep the head low, and in some operations, such as those for spina bifida in the lumbar region, we have applied strips of adhesive plaster to the legs as if for a Buck's extension apparatus, and then supported the child by them, head downward, on a board inclined at an angle of 45 degrees. Hemorrhage is to be controlled by the usual methods, and every bleeding point should be compressed or secured at once.

Children are particularly liable to poisoning by the various chemicals used in sterilization, therefore in operations upon them it is best to employ the methods of sterilization by heat, by repeated washing, and by alcohol, rather than the use of bichloride of mercury, carbolic acid, or iodoform. Iodoform, however, seems to be well borne in tuberculous cases, and it is here that it is most needed. Cases of fatal poisoning have been reported in consequence of the use of carbolic solutions in wet dressings, and local gangrene is frequently observed even from weak solutions.

Fabre: A Hairpin in the Vagina of a Girl Four Years Old. Extraction. (*Gazette Médicale de Paris.* 1897. Vol. lxviii., No. 13.)

The child had been troubled with pin-worms, which emigrated from the anus into the vagina. The mother had been in the habit of extracting the worms with a hairpin, and when the little girl tried to do this herself one day, the hairpin slipped in beyond her reach.

While the convexity of the pin was wedged in the fundus of the vagina, one end protruded at the vulva, and the other was bent behind the pubic arch. After much difficulty it was finally dislodged, and the child recovered without any untoward symptoms.

Delagenière: Intra-Stomachic Exploration by Gastrostomy. (*Gazette Médicale de Paris.* 1897. Vol. lxviii., No. 11.)

A child four years old showed symptoms of œsophageal stricture after swallowing a quantity of caustic potash. Gastrostomy was done, and a cicatricial band immobilizing the pylorus was found and divided. A gastric fistula having been established, the little patient was nourished through this while the œsophagus was gradually and successfully dilated. Recovery was uneventful and complete.

At the operation it was observed that the caustic fluid had followed the lesser curvature of the stomach.

Tubby, A. H.: The Treatment of Congenital Displacement of the Hip. (*The Lancet.* 1897. No. 3844.)

The methods of treatment of congenital displacement of the hip are three: (1) Extension, either in the recumbent position or by apparatus; (2) operative measures; and (3) forcible reduction.

1. *Extension, either in the recumbent position or by apparatus.*—This is the oldest form of treatment, and among its advocates are Pravaz, Buckminster Brown, and William Adams. But to Buckminster Brown should be ascribed the credit of having from the first treated cases in this way with considerable success. He subjected his patient, a little girl, aged four years, to complete recumbency with extension for thirteen months, and then allowed her to get about for a year in an apparatus by which she could imitate the movements of walking without bearing the weight on the legs. At the end of two years and three months the trochanters were in place, lordosis had disappeared, and the child was able to run about normally. Unfortunately, the patient, when seen nine years after the conclusion of the treatment, had lapsed. The author has tried recumbency with extension in two cases with much promise of success, but at present the patients are getting about and walking with an extension apparatus on, and he is waiting until the apparatus has been off for a year before reporting the cases. Sometimes, where it is not possible to submit the patients to prolonged recumbency, the following modification of this treatment may be employed: The use of weight-extension at night and the wearing of an extension-instrument by day, the patient being allowed to walk about at will. This plan is very useful in children under four years of age, but is not successful in older children.

2. *Operative measures.*—Those most in use are Hoffa's and Lorenz's. The details of Hoffa's operation are sufficiently well-known; it is very severe when carried to its full extent. It almost amounts to amputation at the hip-joint, the femoral artery and vein, the anterior crural and the sciatic nerves alone being left intact, and there is wide and deep gouging of the bone at the site of the deformed acetabulum. The author is strongly of opinion that it is not advisable to persuade a patient to undergo Hoffa's operation, because of the unsatisfactory results by which it is so often followed. Another point that militates against Hoffa's operation is the fact that cure is by no means certain. Hoffa has himself stated that he wishes it to be distinctly understood that these children cannot be completely cured, since there is always left some shortening of the limb. In bilateral cases, however, he can reduce the waddling gait to a minimum, and can almost overcome the lordosis.

The details of Lorenz's operation are: Division of the tensor vaginæ femoris through a longitudinal incision starting from the anterior superior spine of the ileum, and to the first incision is added another, passing transversely inwards at the level of the trochanter; the anterior wall of the capsule is then denuded and the capsule opened by a crucial incision, the acetabulum is hollowed out, and the head of the femur re-formed if necessary; after which it only remains to pull on the latter until it is brought down to a level with the cotyloid cavity; much assistance is now afforded by section of the ham-strings. Lastly, the limb is put up in a position of slight abduction: in four weeks' time massage and gymnastic exercises are begun, and these must be continued for a year.

3. *Forcible reduction.*—Paci's manœuvres are carried out as follows: The patient lying down, the surgeon flexes fully the leg on the thigh, and the thigh on the pelvis. This movement carries the head of the femur downwards, especially when assisted by direct pressure. The thigh is now abducted slightly. After this the limb is strongly rotated outwards, and then rather more rapidly fully extended. The last movement throws the head of the femur into, or on, the acetabulum. Paci in 1894 reported on 15 cases, and they were almost perfect a year or more after operation. With the idea of more effectually fixing the head of the femur in its new position or into its proper position, Lannelongue advises the injection of a few drops of a 10

per cent. solution of chloride of zinc at intervals of three or four weeks. This method has answered very well. Lorenz has modified Paci's method, and his present procedure is as follows: First, lowering the head of the femur by traction. Secondly, depressing the head of the femur to the utmost degree by flexion, followed by forcible abduction. The penetration of the head into the cotyloid cavity is announced by a perceptible shock and click. Thirdly, fixation of the femur by a plaster-of-Paris bandage, which prevents reproduction of the dislocation. The plaster-of-Paris treatment should be continued for several months. Lorenz has now employed this method of treatment in forty-three cases, aged upwards of six years, and met with success in every case. No apparatus was ever used after the treatment was finished. As a modification Mikulicz employs an apparatus by which extension is made after the reduction, together with considerable abduction, and the head of the femur is pressed firmly into its new position.

It would seem, then, that of the three methods that have been described that of recumbency with extension, although fairly well tried, has not been quite satisfactory; that of open operation—namely, Hoffa's method—is somewhat dangerous, is by no means perfect in its result, and cannot be relied upon; while that of Lorenz, although less severe, yet also cannot be said to be quite perfect, nor can the originator of that operation admit that he himself is quite satisfied with it, while there is to be noted the sudden change of his opinion in favor of the third measure—namely, forcible reduction. The author has been quite unable to convince himself that it is possible, in the first place, to deepen an imperfect and shallow acetabulum in such a way that the head of the femur can be retained in spite of all the shocks of body movement and weight that it has to bear. Nor in the few cases of Lorenz's operation which he has seen has the result been in any sense satisfactory—either the lordosis or some up-and-down movement has remained, or there was bony ankylosis.

The advantages of securing reduction by manipulation instead of by operation are obvious, apart from the avoidance of risks appertaining to all major operations. There is no scar, there is no possibility of later contracture or of osseous ankylosis, and the after treatment is so simple that children may be treated as out-patients. Operative measures may therefore be said to be restricted in the future to cases in which the manipulative procedure has failed after repeated attempts. Hoffa, of Würburg, Wolff, of Berlin, and Kümmel, of Hamburg, corroborated the opinions expressed by Schede and Lorenz.

It seems, then, that we have reached this position—that operation either by Hoffa's method or by Lorenz's method must be considered seldom necessary, and it is entirely discredited as a means of treating every case of any severity, and that it can only be used as a last resource, and then with no certainty of success, but at considerable risk to the patient. At almost any age up to adult life the manœuvres of Paci, as modified by Lorenz, will be found to afford the best method of treatment. So far, then, we have not attained to any ideal form of treatment of this serious deformity, and the matter must remain for the present in an incomplete stage, but the best we can offer the patient is forcible reduction without an open wound, with the prospect of cure in many cases and of much improvement in others.

M'Bride, P.: The Indications for Operation upon Adenoids. (*Edinburgh Medical Journal.* 1897. Vol. xliii., No. 504.)

Obviously, if the adenoids be of such a size as to materially interfere with speech and respiration, they should be removed. Middle-ear deafness is usually a strong indication, but there is one exception; middle-ear thickening, in which the signs and symptoms are those pointing to ankylosis of the stapes. The tympanic membrane is in such cases not much if at all indrawn, while frequently it has a flamingo-red tinge, and often the hearing is worse when the patient is excited or fatigued. In these cases it is well-known that shock and loss of blood cause exacerbations, and for this reason the pros and cons should be most carefully weighed before exposing such a patient to operation. Recurrent earache may also be an indication for operating. It is desirable to refer to the fact that a small cushion of adenoid tissue so situated as to press upon the Eustachian orifices, may have a very definite effect on the ears, even though there be no symptoms of nasal obstruction. In some cases, repeated colds, occasionally followed by bronchitic attacks, or even asthma, necessitate the removal of adenoids, while the presence of glandular enlargements in the neck are of very great importance, in view of the tendency toward tubercular infection, which may exist.

If a fœtid otorrhœa should be present, it is advisable to postpone the operation until this condition has received treatment.

In deaf-mutes the author's experience has been usually unsatisfactory, as regards the restoration of hearing power, even where the tympanic membranes have been markedly indrawn, but a few favorable cases have been recorded by others.

There can be no doubt that fairly marked adenoids may exist without giving rise to any symptoms of importance, and may entirely disappear. Adenoids are sometimes present in patients suffering from hay fever, atrophic nasal catarrh, nerve deafness, and throat symptoms which were clearly neurotic in origin, the adenoids in these cases causing no inconvenience. In adults, obstinate naso-pharyngeal catarrh may be kept up by the persistence of this hypertrophy, which may give rise to no other symptoms, while the removal of it cures the complaint.

MEDICINE.

Thomson, John: Congenital Gastric Spasm (Congenital Hypertrophy and Stenosis of the Pylorus). (*Scottish Medical and Surgical Journal.* 1897. Vol. i., No. 6.)

Congenital hypertrophy of the pylorus is a condition to which until quite recently almost no attention had been directed; but within the last few years quite a number of papers on the subject have appeared. Instances of hypertrophy and stenosis of the pylorus coming on in adult life have indeed been frequently recorded, but these cases are manifestly of a somewhat different pathology. This must also be true of the cases which have been described by Landerer, Maier, Tilger, and others, as instances of congenital stenosis of the pylorus, although they were only found in adults and older children.

The publication within such a short space of time of so many cases of this hitherto almost unknown abnormality removes it from the category of mere pathological curiosities, and imparts to it the interest which always attaches to a disease which we are expecting to meet with again. Therefore, although there are still many points on which further light is wanted, it may not be quite premature to go briefly over the main clinical and anatomical facts of the published cases and to see what suggestions as to etiology and pathology can be gathered from them.

Sex, Family History, etc.—Seven of the patients were girls, six were boys, and in two cases the sex is not mentioned.

There is nothing special noted in connection with the health of the parents, or with that of the other children in the families. In several of the cases the mother suffered severely from ill-health during her pregnancy, but in none was anything abnormal noted in connection with the labor.

Condition at Birth.—In all cases the children were born at full time, and were well-grown and well nourished at birth. This shows clearly that the condition, although a congenital one, does not interfere with the nutrition of the fœtus.

Commencement of Symptoms.—There is usually, at first, a period of apparently perfect health, and no sign of ill-health appears until the vomiting sets in. This is said to have begun immediately after birth in two of the cases, and on the third day in one of them. In the seven other cases, however, in which this point is mentioned, the child remained apparently quite well for from one to five weeks.

Symptoms.—The vomiting, in uncomplicated cases, is somewhat peculiar in several respects. At first, it occurs at more or less long intervals, but these rapidly diminish, and it soon follows nearly every attempt to swallow fluid. At the beginning, large quantities of liquids always set it up; later on, smaller quantities do so; finally, the smallest spoonful is vomited at once.

The tongue is clean, and the breath free from sourness. The vomited matters consist simply of the fluids swallowed, mixed with mucus; they are never bile-stained. When the vomiting is thoroughly established it is very violent in character, the liquid being ejected with great force, and the child being sometimes apparently severely pained. The rapidity and certainty with which a given food is rejected seems to depend almost entirely on its amount, and to be scarcely, if at all, influenced by the nature of the fluid given.

The ordinary means of allaying vomiting have generally no result at all. Bismuth and other local sedatives do not succeed in quieting it, and stomach-washing generally fails to check it even temporarily. In a case of the author's the vomiting was certainly lessened very markedly for a time when gavage was employed and the child was not allowed to suck. The periodical passage of the stomach-tube also reveals the interesting fact that when the fluid is not vomited it is often retained for long periods in the stomach unabsorbed, the proportion retained varying considerably at different times. This would seem to indicate not only that the pylorus is impassable at these times, probably owing to spasmodic muscular action, but that there is something interfering with the absorption of fluids by the stomach.

The motions are often noticeably scanty, but usually otherwise normal. They are sometimes constipated, and towards the end they often contain much mucus.

Physical Signs.—The intestines are collapsed and the abdomen lax, so that it can be readily palpated. Finkelstein made out clearly, by palpation, the hard hypertrophied pylorus as an easily movable tumor lying in the epigastric region, somewhat to the right of the mesial line; and also proved its anatomical connections by the passage of a catheter and by the injection of air into the stomach. The peristaltic movements of the stomach were also very distinct in his case.

The Duration of Life varies from three weeks to a little over six months—the average being less than twelve weeks. It is well worthy of note that the degree of muscular hypertrophy of the pylorus bears no constant relation to the length of the child's life. In fact, in some of the cases where the hypertrophy was greatest the duration of life was particularly short. This fact seems strongly in favor of the hypertrophy having developed *in utero*, as from other considerations it must obviously have done.

Finkelstein relates three remarkable cases out of Professor Heubner's private practice, which, in many respects, resembled those under discussion, and yet recovered. In none of the fatal cases was even palliative treatment more than very temporarily successful.

Treatment.—While the nature of the disease precludes all thought of successful medical treatment, the question of its relief by surgical operation is worthy of consideration, as Schwyzer points out. He suggests laparotomy, and either dilatation of the pylorus, or gastro-enterostomy. It does not seem as if the former could possibly do any good in the presence of so much muscular tissue, but the latter, or the excision of the hypertrophied pylorus, might be worth trying.

Morbid Anatomy.—There is always more or less emaciation, due to the extent to which the incessant vomiting has interfered with nutrition. In one of Hirschsprung's cases there were tubercular complications present in the chest, but usually no abnormality unconnected with the stomach disorder is to be found in the body. The alimentary canal, below the pylorus, is perfectly normal. The œsophagus is sometimes noticeably dilated, sometimes of normal calibre. In none of the cases was any other congenital abnormality noted.

The stomach is generally considerably enlarged; and while its walls at the cardiac end are as thin as or thinner than usual, over the rest of the organ they are much thicker than normal, especially towards the pylorus. The pylorus itself is much enlarged, and looks and feels like an almost solid fusiform, or even oval mass of muscular tissue. When looked at from the duodenum the pyloric opening seems almost closed, the mucous membrane being puckered by the contraction of the hypertrophied muscular wall; and, although it readily allows the passage of a probe, even firm pressure on the stomach is not sufficient to drive fluids through it into the bowel. In none of the author's cases, certainly, was there any fibrous stricture present all. The whole narrowing of the passage seemed to be due to compression by the hypertrophied muscle. The mucous membrane seemed indeed rather smaller in extent than in a normal pylorus, but the constant compression to which it had been subjected would easily account for this. In each case it was voluminous, compared to the size of the lumen which it lined.

In all the cases which were examined microscopically (except Finkelstein's), the thickening of the pylorus was due mainly to great hypertrophy of the circular layer of muscular fibres. Finkelstein's case formed a remarkable exception to what seems to be the rule in this matter, as in it hypertrophy of the longitudinal muscular layer constituted the main cause of thickening. The serous coat is unchanged. The submucus coat is sometimes greatly thickened, sometimes slightly so, and sometimes it is normal. The mucous membrane is either quite normal, or it shows merely such changes as would be expected to follow the constant violent vomiting and the attempts to feed the child in a variety of ways.

With regard to the pathology and etiology, the following suggestions may be made:

1. The dilatation of the stomach and œsophagus, and the slight signs of irritation in the mucous membrane (when such are present) are, of course, merely the result of the muscular overaction of the stomach.

2. The muscular hypertrophy of the pylorus and stomach-wall is also merely a secondary occurrence, being obviously due

to abnormally increased functional activity, and this (from the degree of the hypertrophy, and the early age of the children) must have existed for a considerable period of intra-uterine life.

3. The essential lesion, therefore, is not a muscular but a nervous one—a functional disorder of the nerves of the stomach and pylorus leading to ill co-ordinated and therefore antagonistic action of their muscular arrangements.

4. Such an antagonistic spasm of the pylorus and stomach must be connected with the passage downwards of the large quantity of liquor amnii which the fœtus is believed to swallow during the later months of intra-uterine life. It might be very slight in degree, and yet, owing to its constant recurrence, and the power of growth of the fœtal tissues, it might lead in time to very great hypertrophy.

5. The functional irregularity might conceivably be caused by an irritating property in the fluid entering the stomach. This, however, is rendered unlikely by the fact that there are no signs of severe irritation found in the mucous membrane of the stomach, or elsewhere, in the alimentary canal. The further fact that after birth the vomiting is so largely influenced by the quantity and so little by the quality of the ingested fluid, is also against this view.

6. It seems more in accordance with the facts and probabilities of the case to suppose that the essential fault, which gives rise to the muscular hypertrophy *in utero*, as well as to the vomiting after birth, lies not in the stomach's contents, but in its nervous mechanism, and is probably due, in some way, to delayed or imperfect development.

7. Lastly, if it is admitted, as the author thinks it must be, by every one, that the muscular hypertrophy is secondary to some sort of overaction, it will surely be better to call the disease "Congenital Gastric Spasm," or "Congenital Pyloric Spasm," or even "Congenital Idiopathic Vomiting," rather than to apply to it any term which is merely descriptive of the secondary anatomical changes found after death.

Moizard: The Encephalopathies of Pneumonia. (*Journal de Clin. et de Théraps. Infantiles.* Vol. iv., No. 41.)

In the case of a six-year-old boy who had a severe bronchopneumonia following measles, there developed cephalalgia without vomiting, contractures or irregularity of the pulse, but with violent one-sided convulsions. The absence of fever excluded meningitis, that of paralysis excluded a central lesion, and that of albuminuria made uræmia improbable. A diagnosis of cerebral congestion due to microbic toxines was made, and the child recovered perfectly after a short period of somnolence and headache.

In contrast to this benign case the author reports a fatal one in a child of two, previously healthy, who suddenly developed a grave case of broncho-pneumonia. On the fifth day convulsions suddenly appeared and were repeated, while the temperature steadily rose until death, in less than twelve hours after the onset of cerebral symptoms. There had been no paralysis, strabismus, irregularity of the pupils, nor opisthotonos, and a diagnosis of suppurative meningitis at the convexity was made in consequence. At the autopsy greenish pus was found over the cerebral convexity, and the ventricles were distended with serous fluid. Pneumococci in large numbers were present in the pus and in the cerebro-spinal fluid.

While it is quite possible that disturbances of the cerebral circulation (congestion, œdema) may cause nervous symptoms, it is impossible to demonstrate the fact. The toxines may act either directly upon the nerve cells, exciting or paralyzing their action, or indirectly through the blood vessels as a vaso-motor influence. The latter explanation is probably the true one.

Comby: Five Hundred Cases of Scarlet Fever. (*L'Echo Méd. du Nord.* 1897. Vol. i., No. 71.)

These were observed at the Trousseau Hospital during 1896, and warranted the following conclusions: Scarlatina is rare under the age of three and after twelve years, but common between three and nine, equally to both sexes; more cases occur in Spring and Summer than in autumn and winter; death is due to various complications, especially of the respiratory tract or of the bucco-pharyngeal cavity (gangrene, etc.); of fifty-eight deaths, only fifteen were due to scarlatina alone, that is, the malignant, hyperthermic form.

The treatment must above all be hygienic, with careful buccal antisepsis, and cold baths in the case of very high temperature.

ARCHIVES OF PEDIATRICS.

VOL. XV.] MARCH, 1898. [No. 3.

Original Communications.

A REPORT OF FIVE CASES OF ABSCESS OF THE BRAIN IN INFANTS, TOGETHER WITH A SUMMARY OF TWENTY-SEVEN COLLECTED CASES, IN INFANTS AND VERY YOUNG CHILDREN.

BY L. EMMETT HOLT, M.D.,

New York.

(Concluded from page 106.)

ETIOLOGY.—Of the 32 cases, 13 were under one year of age, 9 of these being under six months and 5 under three months; 3 occurred during the second year, and 5 in each the third, fourth and sixth years, no case being included which was five years old or over.

Of the 13 first-year cases, 2 were distinctly traumatic and 1 probably so; 1 was positively an ear case and 4 others probably so; 1 complicated pyæmia; 1 spina-bifida, and in 3 the origin was uncertain. Of the cases over one year old, 10 were positively sequelæ of otitis; 7 positively traumatic, and 1 doubtfully so; 1 was secondary to necrosis of the skull. The two most important factors in the etiology of cerebral abscess in young children, as at all ages, are, therefore, otitis and traumatism.

In three of the cases (I., II., IV.), no discharge from the ear had preceded the cerebral symptoms; however, in 1 there was an ear discharge during the course of the brain abscess, and in 2 others pus was found in the middle ear at autopsy although no discharge was present during life. These last cases deserve more than passing notice; the frequency with which pus is found in the middle ear in very young children, particularly infants, who have died from various forms of disease, has only recently been appreciated. Kossel (*Jahrb. f. Kinderh.* xxxvii.,

445) found it in 85 out of 108 consecutive cases examined; Rasch (*Jahrb. f. Kinderh.* xxxvii., 319), in 45 out of 60 cases; Hartmann (*Jahrb. f. Kinderh.* xl., 285), in 35 out of 47 autopsies, in 28 of which it was double. The majority of the above patients were infants, and in a large percentage of them no symptoms of otitis had existed during life. In this condition, it seems to me, is to be found an explanation of the origin, not only of brain abscess which develops without exciting cause, but also of very many of the cases of acute meningitis for which no etiology can be found. It is highly probable that in the 4 cases in infants of three, five, six, and fourteen months respectively, in which no cause could be traced, light might have been thrown upon the etiology had the middle ear been examined at autopsy, which unfortunately is not recorded.

There were 11 cases in which an aural discharge preceded the brain symptoms, and in 6 of these there had been a mastoid abscess. The discharge from the ear had lasted two or three weeks in 1 case; from three to four months in 3 cases; seven months, fourteen months, and two years each in 1 case. In 8 of the 11 cases, it is positively stated that caries of the petrous bone existed, and in 2 others this condition seems probable from the history; the remaining one had a mastoid abscess. It is, therefore, the old and usually the neglected cases of otitis which are likely to be complicated by brain abscess, and nearly always it is secondary to caries of the temporal bone.

Traumatism was assigned as a cause in 10 cases; in 7 of these (VI., IX., XII., XIII., XIX., XXVI., XXXII.) the abscess followed a wound with fracture of the skull; in 3 there was history of injury but no fracture; in 1 of these the injury was three months before the symptoms, but as pus was found at autopsy in the mastoid, this should probably be ranked as a case due to ear disease. In 7 of the traumatic cases decided cerebral symptoms developed within a week after the injury; in 4 of these there was fracture, and in 3 none. In 1 case the first symptoms were at the end of two weeks; in 1 case at the end of four weeks, and in 1 case without fracture, at the end of three months, this being a doubtful case.

Of the remaining cases, 1 (V.) was due to infection of the brain previously the seat of hydrocephalus, from a spina-bifida sac, and one (XV.) was due to pyæmia following omphalitis in the newly-born; case XXI. was possibly pyæmic also. Necrosis of the frontal bone was responsible for 1 case, and although syphilis is probable in this, the full history makes no mention of it.

SYMPTOMS.—*The mode of onset.*—This is of considerable interest as it is one of the points which may be of value in differential diagnosis. In 7 cases the onset was gradual with indefinite symptoms; in 2, gradual with facial paralysis; in 1 with hemiplegia and fever; in another with hemiplegia only, and in 1 with fever only, making in all 11 cases with a gradual onset. In 15 cases the development of the cerebral symptoms was abrupt; with general convulsions in 7 cases; with localized convulsions in 3; with intense headache in 3, vomiting in 7, and fever with vomiting and convulsions or paralysis in only 3. In the remainder the mode of onset is not reported.

In 3 cases the disease was entirely latent, and in 2 others no symptoms were noticed until the last twenty-four hours, so that in 5 the abscess practically ran its course without symptoms. In 27 cases constitutional and cerebral symptoms were present, varying much in degree and duration.

Focal symptoms.—These depend upon the position, not the size of the abscess; they are very often wanting for the reason that parts in which the great proportion of abscesses are found (temporo-sphenoidal lobe, cerebellum, or frontal lobe), are not those which usually give rise to definite focal symptoms from any form of lesion.

In only 12 cases (VIII., XII., XV., XVIII., and cases XXV to XXXII) were there distinct focal symptoms; in 7 of these there was hemiplegia, and it is interesting to note that 5 were traumatic cases, 2 being instances of very large abscesses secondary to otitis. Of the remaining 5 cases with focal symptoms, there was one (XXV) of cerebellar abscess which presented quite typical cerebellar ataxia, but in the others they were not sufficiently definite to localize the disease.

It is of interest to group the cranial-nerve symptoms recorded and see to what degree they aided in the diagnosis. There were 20 cases in which some such symptoms were present. In 3 cases there were only dilated pupils; in one, only contracted pupils; in one, only internal strabismus; in one, strabismus and dilated pupils.

Facial paralysis was observed in 10 cases; but in 6, as it followed old ear disease, it was probably peripheral, in 4 of these being the only nerve symptom. In the remaining cases with facial paralysis (IV, XII, XV, XXXII), reference to the table presented below will show the value of the symptom.

Anæsthesia of the face was noted in three cases (XXVII, XXVIII, XXIX).

Ptosis was noted in four cases (XII, XXVII, XXVIII, XXIX).

External strabismus was noted but twice (XV, XXVIII).

Optic-nerve atrophy was noted but once (IV).

In going over these cranial-nerve symptoms it will be seen that in the six cases first mentioned the symptoms have no localizing value, and that in those of facial paralysis following ear disease it has none, this being in all probability peripheral, although this point is not definitely stated. Such a paralysis, in which the whole side of the face is involved, must be carefully distinguished from one in which it is of central origin where only the lower half of the face is affected.

There are several reasons why these cranial-nerve symptoms were of so little value in the diagnosis; one being that in these patients they were often temporary and not constant, and another that they were in several instances due to meningitis and not to the cerebral abscess. It is quite probable that many focal symptoms were overlooked on account of the age of the patients and the difficulties in the way of careful examination.

It is hardly necessary to say in this connection that opisthotonus and nystagmus are not focal symptoms, and that, particularly in infants, even localized convulsions often are not so, although they may continue for a considerable time. That the reader may see the exact relation of the symptoms to the situation of the abscess, they have been grouped in parallel columns.

I. No cerebral symptoms. (6 weeks old, ear case ?)	Large abscess in L. parietal lobe.
II. Fever, irregular respiration, opisthotonus, nystagmus, retracted abdomen, no focal symptoms. (3 months old, ear case ?)	Abscess in both parieto-occipital lobes and cerebellum, pus in ventricles.
III. Fever, opisthotonus, general rigidity of extremities, stupor, retracted abdomen, no focal symptoms. (5 months old, traumatic.)	Small abscess of cerebellum, pus in ventricles, meningitis.

IV.	Fever, bulging fontanel, opisthotonus, dilated pupils, increased knee-jerk, vaso-motor paralysis, irregular respiration, general rigidity of extremities, mental dulness, no coma, optic nerve atrophy. (9 months old, ear case ?)	Cerebellar abscesses; large and small one in R. hemisphere, small one in L.
V.	No cerebral symptoms. (3 weeks old, infection from spina bifida.)	Both ventricles filled with pus, meningitis.
VI.	Vomiting, general convulsions, no focal symptoms. (8 months old, traumatic.)	Abscess in frontal lobe communicating with ventricle.
VII.	Vomiting, convulsions, irregular respiration, no focal symptoms. (3 months old; cause ?)	Cerebellar abscess communicating with ventricle.
VIII.	Convulsive movements of R. arm and leg followed by paralysis, blindness, equal dilatation of pupils, stupor, enlargement of the head. (10½ months old, traumatic.)	Enormous abscess of L. frontal lobe.
IX.	Vomiting and convulsions, no focal symptoms. (18 months old, traumatic.)	Abscess in occipital lobe.
X.	Enlargement of the head, contracted pupils, internal strabismus. (6 months old; cause ?)	Abscess involving nearly whole of hemisphere communicating with L ventricle.
XI.	Repeated general convulsions, once R. side only, enlargment of the head, pupils equal and dilated. (14 months old; cause ?)	Large encysted abscess of the R. ventricle.
XII.	Paralysis of the L. face, R. arm and leg, ptosis and internal strabismus of the L. side. Recovered after operation. (2½ years old, traumatic.)	Large abscess in parietal lobe L. side.
XIII.	Vomiting, coma, no focal symptoms. (18 months old, traumatic.)	Large abscess in frontal lobe.
XIV.	Convulsions, opisthotonus, fever, no focal symptoms. (5 months old; cause ?)	Both ventricles filled with pus, meningitis, pus in central canal of cord.
XV.	Fever, convulsions, dilated pupils, R. external strabismus, L. facial paralysis. (7 weeks old, pyæmic.)	Multiple abscesses, meningitis.

XVI.	Convulsions, coma, opisthotonus, rigidity of extremities, fever, nystagmus, dilatation of pupils, strabismus. (7 months old, traumatic.)	Cerebellar abscess of under surface of L. lobe, meningitis.
XVII.	No cerebral symptoms. (4 years old, ear case.)	Large abscess in L. temporo-sphenoidal lobe.
XVIII.	Fever, paralysis L. face, stupor, terminal convulsions, cerebral symptoms of few hours only. (2 mos. old, ear case, unsuccessful operation)	Small abscess in L. temporo-sphenoidal lobe.
XIX.	Convulsions especially of L. side and "other cerebral symptoms," but no paralysis. (4 years old, traumatic case; recovered after operation.)	Large abscess in frontal lobe.
XX.	Facial paralysis, terminal fever and coma. (2½ years old, ear case; unsuccessful operation.)	Abscess of the left lobe of cerebellum.
XXI.	Pain, fever, facial paralysis, and "symptoms of cerebral disturbance" (22 months old, ear case; recovered after operation.)	Small abscess in temporo-sphenoidal lobe.
XXII.	L. facial paralysis. (2 years old, ear case; recovered after operation.)	Abscess in L. temporo-sphenoidal lobe.
XXIII.	Large discharge of pus from abscess through ear; severe pain, terminal coma. (3 years old, ear case.)	Abscess in L. temporo-sphenoidal lobe.
XXIV.	Headache, opisthotonus, convulsions, blindness. (4 years old, ear case.)	Abscess in L. lobe of cerebellum extending into the pons; meningitis.
XXV.	Congested optic discs, cerebellar ataxia, fever. (3 years old, ear case.)	Abscess of middle lobe of cerebellum; meningitis.
XXVI.	Fever, R. hemiplegia, L. ptosis, wound discharging pus in L. temporal region. (2½ years old, traumatic case; operation, recovery.)	Abscess in posterior part of L. frontal lobe.
XXVII.	Convulsions of R. side followed by paralysis and anæsthesia of R. arm and leg, L. ptosis and anæsthesia of L. face. (2 years old, ear case.)	Abscess in temporo-sphenoidal lobe extending into occipital and reaching the internal capsule.

XXVIII.	Paralysis and partial anæsthesia of L. face, ptosis and external strabismus L. side, both pupils dilated, pain in L. side of head, chill, fever and general convulsions followed by R. hemiplegia. (4 years old, ear case.)	Large abscess of L. middle lobe; basilar meningitis.
XXIX.	Fever, vomiting, convulsions, localized headache L. side, anæsthesia L. face, L. internal strabismus; later aphasia. (3 years old, necrosis of frontal bone.)	Large abscess of L. frontal lobe, meningitis, embolism of Sylvian artery.
XXX.	Paralysis R. face, irregular pupils, L. being large, localized headache; fever, paralysis of R. arm. (4 years old, ear case.)	Abscess in R. middle lobe, tubercular meningitis.
XXXI.	Convulsions, L. hemiplegia. (4 years old, traumatic case.)	Two abscesses in R. middle lobe and one in posterior lobe.
XXXII.	Early convulsions, drowsiness, and later R. hemiplegia, ptosis R. side, slight fever, irregular pupils, intermittent pulse, convulsions. (3 years old, traumatic case; unsuccessful operation).	Large abscess in L. parietal lobe containing six ounces of pus.

General symptoms were thus much more constant than focal ones, but hardly more definite, and frequently they bore no relation whatever to the size of the abscess,—for example, in case X, with an abscess filling a large part of one hemisphere, definite symptoms were of but three days' duration; and in XVII, a large abscess existed without any cerebral symptoms.

Of general symptoms, records regarding temperature are most meagre ; in 3 uncomplicated cases (II, IV, XXXI,) where full temperature records were kept for a long period, the temperature was normal much of the time, and in several the others constant fever existed only in the terminal stage. Two of these charts are given in full. In most of the remaining cases where the temperature is mentioned, such complications were present as to make it impossible to draw any inference.

Rigors were noted in but a single case.

Convulsions were present in 20 of the cases, usually marking the onset of the brain symptoms, or frequently the final stage.

Deep coma was rare, being noted but four times, the usual mental condition being dulness or apathy, alternating with irritability even after the development of definite cerebral symptoms.

Enlargement of the head and bulging of the anterior fontanel were noted each in 2 cases.

Pain in the head was recorded six times, but in the majority it was not localized on account of the age of the patients.

The other symptoms recorded were of most variable character, and such as might be met with in any case of acute brain disease of whatever nature.

Duration of Symptoms.—In 5 cases the symptoms were either entirely latent or of less than twenty-four hours' duration; in the remaining cases in which the course was not influenced by an operation, the symptoms lasted from one to seven days in 3; from one to four weeks in 5; from four to eight weeks in 7; for three months in 2, and for seven months and one year each in one case. In two-thirds of the non-operative cases, therefore, the duration was four weeks or less.

The Progress of the Disease.—Of 26 cases, the course of which was not influenced by operation, there were 20 in which there were no symptoms until the terminal ones, these being of less than three weeks' duration in 15, and over three weeks in 5 cases. In 4 cases only was there a period of early acute symptoms following otitis or injury, and then an interval of latent symptoms with a terminal acute stage. In 2, the course was prolonged and irregular, but without any interval of cessation.

Spontaneous Opening.—In 3 cases (XVII, XXIII, XXIV) a cerebral abscess is reported to have discharged during life through the ear. In two the discharge of pus was followed by great improvement in the cerebral symptoms; in the third a gush of pus took place from the ear just before death.

DIAGNOSIS.—One has only to glance over the reports of the cases here collected to see how extremely difficult, in a very large number of the cases, is the diagnosis of cerebral abscess in very young children. Many of our most valuable symptoms in older patients, such as headache, tenderness of the skull, visual disturbances, deafness on one side, and various other sensory manifestations, are of no value in young children. In cases presenting only the acute terminal symptoms a diagnosis is impossible. However, with a scar on the scalp or a history of an injury by some sharp instrument, or of a mastoid abscess, or of a long standing aural discharge, followed by hemiplegia, which develops either slowly without fever, or more rapidly with vomiting, fever, convulsions and other symptoms of acute intracranial inflammation, one can be reasonably sure of the existence of a brain abscess. In the group of cases intermediate between the two just mentioned, where the previous history is uncertain or altogether wanting, where the course is prolonged and irregular, the fever absent or only sightly marked, and paralysis wanting, one must always be in great doubt, sometimes even though he has watched the case for a long time. On account of the position of most of these abscesses their symptoms are general rather than focal, and often only general brain symptoms are present, unless the motor centre of the arm or leg is invaded. Paralysis of the whole side of the face counts for nothing in the ear cases.

In little children it is with meningitis rather than tumor that abscess is usually confounded, the difficulty in diagnosis being much increased by the fact that so often meningitis is also present. It is impossible to distinguish between these two conditions in the cases of abscess where definite brain symptoms are present only for the last week or two of the disease, whether they have developed without assignable cause, or have been immediately preceded by injury or by an old ear discharge. However, if there is an interval after an injury of a few days or weeks before brain symptoms begin, whether the latter come on abruptly with headache, vomiting, convulsions and fever, or gradually with paralysis and very little fever, abscess is altogether probable. In the slower and less acute cases, the progress is apt to be more irregular than in meningitis, and if paralysis of the arm; leg or lower half of the face is present, it is apt to be more complete and constant than in meningitis. Bulging of the fontanel and enlargement of the head are more likely to be great in abscess than in meningitis, unless the latter is basilar, in which situation it usually gives other definite symptoms. Chronic meningitis is distinguished by the absence of exciting causes such as provoke abscess, by its very slow and insidious beginning and prolonged course.

To distinguish between abscess and tumor at this period of life is not usually so difficult. In tumor the cranial nerve symptoms are more frequent and more prominent; irritative symptoms such as localized convulsions are more marked, and pressure symptoms usually less so, unless the tumor is so situated as to cause distension of the ventricles. Tumors are generally smaller than abscesses, and all focal symptoms are apt to be more definite than abscess. Valuable assistance may sometimes be obtained by lumbar puncture. The discovery of pyogenic organisms in this fluid makes abscess or meningitis practically certain, although it does not tell us which one. Case IV. shows that optic-nerve atrophy cannot be depended upon as a differential symptom in a doubtful case, although it is much more frequent in tumor than in abscess. After all, it is the definite cause, the shorter duration and more rapid progress, which chiefly distinguish abscess from tumor, very few of the abscess cases giving symptoms for a longer time than eight weeks.

LESIONS.—The abscesses in this series of cases varied greatly in size, from very small multiple ones (XV.) to those containing as much as eight ounces of pus (XXXII.), and occupying a large part of one cerebral hemisphere.

In 25 of the 32 cases the abscess was single; in 3, three abscesses were present; in one case there were many small abscesses; in three the pus was in the ventricle only.

The situation of the abscess was as follows:

Temporo-sphenoidal lobe, 6 cases, all secondary to otitis.

"Middle" lobe (probably temporo-sphenoidal), 2 cases, secondary to otitis.

Cerebellum, 7 cases: 4, secondary to otitis; 1 and possibly 2, traumatic; 1, cause unknown.

Frontal lobe, 6 cases: 5, traumatic; 1, secondary to necrosis.

Parietal lobe, 4 cases: 2, traumatic; 2, probably from otitis.

Left hemisphere, 2 cases: 1, cause unknown; 1, traumatic.

Multiple of cortex, 1 case, pyæmic.

Pus in ventricles only, 3 cases: 1, infection from spina-bifida sac; 2, cause unknown.

In 7 cases the abscess is stated to have communicated with the ventricles, and in most of these the amount of pus in the ventricles was large.

In 15 cases meningitis was present; in 5 of these it was localized, and in one it was tubercular.

There were at least two cases (IV., VII.), in which the structure of the abscess wall makes it probable that the abscess arose as an infection of an old cerebellar cyst. There was another case in which there appears to have been a cyst of the ventricle, and two more where there was infection of a previously simple hydrocephalus. This is a feature in the development of brain abscess in very early life which merits further study.

THE RESULTS OF OPERATION.—Operative interference was resorted to in 9 cases, 5 of which recovered. The youngest case operated on (XVIII.) was two months old; the youngest successful case (XXI.) was twenty-two months old. Two of the successful cases were for traumatic abscesses, one in the frontal and one in the parietal lobe; the remaining 3 were temporo-sphenoidal abscesses following otitis.

One of the unsuccessful operations (XXXII.) was for a traumatic abscess in the parietal lobe; nothing was found on opening the dura. Another case (XX.), complicating otitis, was trephined over the temporo-sphenoidal lobe, the autopsy showing the abscess to be cerebellar. Another case (XVIII.) was operated on for mastoid disease, and skull opened with negative result; later a probe pushed through the dura was followed by a discharge of a quantity of pus. The fourth case (XIII.) was aspirated through a wound with no benefit. In cases XVIII., XX., XXXII., further exploration of the cranial cavity was deemed unwise, because of the child's collapsed condition at that stage in the operation. Nearly all surgeons agree in the great shock which attends surgery of the brain in young children, and this should make one hesitate strongly in advising surgical interference in cases under three years old, unless there are very definite focal symptoms.

CONCLUSIONS.

(1) Abscess of the brain in children under five years is rare.

(2) The principal causes are otitis and traumatism.

(3) It rarely follows acute otitis, but most often neglected cases, and is usually secondary to disease of the petrous bone.

(4) In the cases occurring in infancy without evident cause, the source of infection is probably the ears, even though there is no discharge.

(5) The development of abscess after injury to the head without fracture of the skull is extremely rare. In nearly all of the traumatic cases, definite cerebral symptoms show themselves within the first two weeks after the injury. In cases with falls, as remote as several months, there is probably some other cause, such as a latent otitis.

(6) In a large proportion of the cases only general symptoms are present, and these in very great variety.

(7) Focal symptoms may be misleading unless they are constant, and even then they may depend upon associated lesions, such as meningitis. Motor symptoms only can be trusted since the sensory symptoms are difficult or impossible to determine in infants or young children.

(8) Rapid progress, fever, and a history of injury or otitis generally make a diagnosis from tumor easy. In the slower cases with little or no fever, valuable assistance may be obtained from lumbar puncture.

(9) From acute meningitis the diagnosis is more difficult, and in the cases in which there are only terminal symptoms the diagnosis is impossible. In the more protracted cases, the distinctive points with reference to abscess are the slower and more irregular course and, as a rule, a lower temperature.

(10) On account of the great amount of shock attending brain surgery in very young children, operation should not be urged unless definite localizing symptoms are present, the principal one being hemiplegia.

I wish to express my indebtedness to Dr. Martha Wollstein for the bacteriological work done upon these cases, and to Dr. Louise Cordes for drawings of the pathological specimens.

14 WEST FIFTY-FIFTH STREET.

Variations in the Weight of Infants After Birth.—By weighing over 500 full-term healthy children on the seventh and fourteenth days after birth, Schaeffer, in *Centralb. f. Gyn.*, No. 46, 1896, determined that only 14½ per cent. of all children reach or exceed by the seventh day their weight at birth; 44½ per cent. do not reach their initial weight in fourteen days. The minimum weight occurs on the third day. The initial weight is reached on an average on the ninth day. Boys show less variation of weight than girls. Those babies which at birth weigh more than the average, especially if girls, lose more in weight than the others. Premature children exceeded full-term ones in loss of weight and temperature, and in nitrogenous excretion and in frequency of icterus.

The variations in weight are explained by the active metabolism and extraordinary need of warmth of the new-born child.—*American Medico-Surgical Bulletin.*

TWO CASES OF CONGENITAL ELEPHANTIASIS.

JOHN H. JOPSON, M.D.,

Assistant Demonstrator of Surgery, University of Pennsylvania; Surgeon
to the Out-patient Department of the Children's and of the
Episcopal Hospital, Philadelphia.

The following cases came under my observation at the Children's Hospital, the older child two and a half years ago, and the younger one recently. The patients are brothers, and the family history is that the mother has had four other children, all older than these, two of whom are living, and none presenting the peculiar condition which is observed in the two younger children. She also had two miscarriages before these children were born. The most interesting point in the family history, as we shall see later, is that the father suffered from a similar affection in childhoood, which was later outgrown.

The older child, Andrew (Fig. 1), now four years of age, was seen at birth by the late Dr. Rex, and shortly afterwards by Dr. H. R. Wharton. He then exhibited almost the identical condition which is now present. This may be described as a marked swelling of both lower extremities, involving the feet and legs almost as high as the knees, the increase in size being apparently due to a thickening or infiltration partly of the skin, but mainly of the subcutaneous tissue. The swelling is quite firm, but pits on prolonged pressure, and resembles a firm œdema. It forms thick pads over the dorsal surfaces of the feet, and does not appear to be associated with any hypertrophy of the underlying bones. The skin is white, turning bluish-red on exposure, is somewhat thickened, and of a normal temperature. The nails are short and stubbed. At birth there was also an involvement of the prepuce. In the spring of 1895, during my term of service as House Surgeon at the Children's Hospital, the child was admitted for circumcision. The prepuce was then long, thickened, and chronically inflamed. There still exists some œdema of the remains of the prepuce and of the sheath of the penis.

In the younger child, William (Fig. 2), now one year and a half old, the condition was also congenital and is very similar in appearance, although less marked. The feet are not so large, the swelling does not extend much above the ankles, and the prepuce is not affected. In both cases the swelling is a little less marked in the morning. The visit of the younger child to the hospital was occasioned by an inflammation around the nail of one toe due to the overriding of the adjacent swollen tissue. There are in neither case any evidences of any varicosities, ulcerations or vascular telangiectases. The children are, aside from the condition described, perfectly healthy. They began to walk early, apparently not being inconvenienced by the abnormality of the lower extremities, are intelligent, and active beyond the majority of children of their age, and have never had any serious illness. Physical examination gives negative results. The heart sounds are normal, and the examination of the urine gives no signs of disease. Finally, in the older child, the condition seems to be becoming less marked as he grows older.

A comparison of these cases with those reported by various writers as examples of congenital elephantiasis, and with the descriptions of that affection as given by systematic authors, as Virchow and Ziegler, as well as in the elaborate work of Esmarch and Kulenkampf, has left but little doubt in my mind that they should be included in the same group. According to Esmarch and Kulenkampf, congenital elephantiasis may be divided into two groups. To the first belong those cases which are of lymphatic origin, elephantiasis congenita lymphangiectatica. To the second group belong those cases dependent on abnormalities of the blood vessels, E. congen. telangiectatica; of the connective tissue, E. fibromatosa; and of the nerves, E. neuromatodes. Finally there may be a combination of forms, as in the case reported by Waitz (*Langenbusch's Archiv. Bd.* 39, 1889), in which there was involvement of both lymphatics and blood vessels; and in nearly all forms of elephantiasis there is a tendency to an overgrowth of connective tissue. To the first group, including the examples of lymphatic origin, I believe my cases to belong. This view is favored by the œdematous nature of the enlargement, which, although quite firm, is evidently due mainly to a fluid infiltration of the subcuticular tissues, associated with some fibrous overgrowth, and by the absence of evidences of involvement of the blood vessels in the shape of angiomatous swellings, telangiectases, etc.

The pathological lesions consist mainly in a dilatation and telangiectasis of the lymphatics of the corium and subcutaneous connective tissue. In the case described by Neelsen (*Berlin Klin. Wochenschrift,* 1882,) there were varicosity and dilatation of the lymphatic vessels of the skin and subcutaneous tissue, dilatation of the connective tissue spaces, and widening of the blood vessels, the appearance being that of an œdomatous tissue.

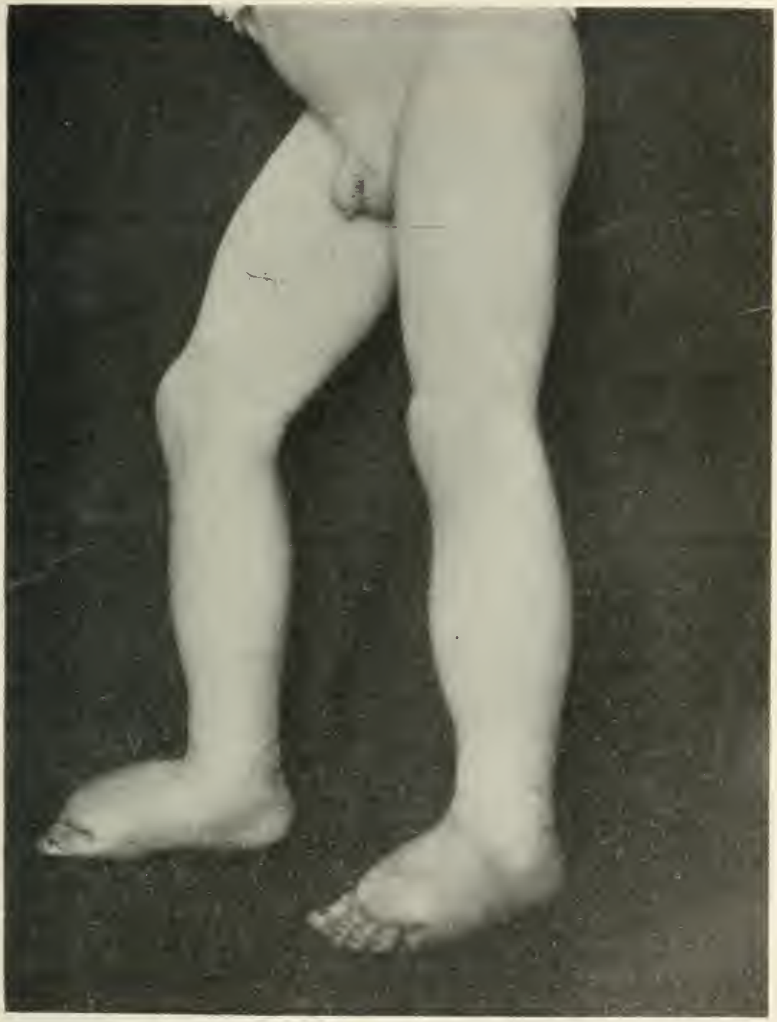


Fig I. CONGENITAL ELEPHANTIASIS, ANDREW G., AT FOUR YEARS.

As a generalized condition elephantiasis is found in anidic and acephalic monsters, and in cases of premature birth, probably being dependent here according to Virchow on an imperfectly developed circulatory system. The localized form attacks especially the lower extremities and the external genitalia, as in my cases. There is often a tendency to cystic degeneration with the formation of fluctuating swellings which may rupture and give rise to a lymphorrhea. There is apt to be also some overgrowth of connective tissue. That the condition is often an inherited one is apparently well proven. There is a strong predisposition in certain families to the acquirement of elephantoid deformities even in post-natal existence, which may not be entirely dependent upon subjection to the same environment and influences. The most striking example of the transmission of elephantiasis which has come under my notice is in the family reported by Milroy (*Omaha Clinic*. Vol. v., p. 101,) under the title of "An Undescribed Variety of Hereditary Œdema," in which there was in six generations an enlargement of one or both lower extremities in twenty-two of the ninety-seven individuals. From Milroy's description the cases were apparently examples of congenital elephantiasis, although Osler and Welch were inclined to classify them under the head of angio-neurotic œdema, and in the last edition of *Osler's Practice* they are mentioned in the article on that disease. That the cases I have described, and the essential features tally with those of Milroy's, are not to be included under what we know as angio-neurotic œdema, I think there can be little doubt, and my belief was confirmed by the opinions of those who examined them at the time they were shown before the Philadelphia Pediatric Society. In all but two of Milroy's cases the enlargement was congenital, and in these two the enlargement followed an injury, a not unusual history in these cases, in which the predisposition being present, injury, disease, or the natural growth of the individual acts as an exciting cause. Nonne (*Virchow's Archiv. Bd.* 125,) has reported a family in which in three generations eight out of fourteen persons were affected. Moncorvo (*Pediatrics*, Vol. iv., No. 11, 1897,) has tabulated twelve cases of his own, in seven of which there was a previous history in the family of lymphangitis with or without elephantiasis. The hereditary nature of the deformity in my own cases was apparently proven by the very clear history of a similar affection in the father, although all traces of it are now said to have disappeared.

It is interesting to note that in a number of the cases on record there has been a disposition on the part of the parents to ascribe the origin of the condition to maternal impression, as the sight during pregnancy of an elephant, or of a woman with swollen legs, and in one case of a fœtus preserved in a physician's office. Moncorvo attributes the enlargement to an inflammation of the lymphatics, arising in intra-uterine life from the passage of the streptococcus of Fehleisen through the placenta from mother to fœtus, thus endeavoring to explain its occurrence in children whose antecedents suffered from lymphangitis or acquired elephantiasis of erysipelatous origin. The apparent dependence of the generalized form on obstructions in the blood-vascular system has already been mentioned, and some of the localized forms are probably due to the same cause.

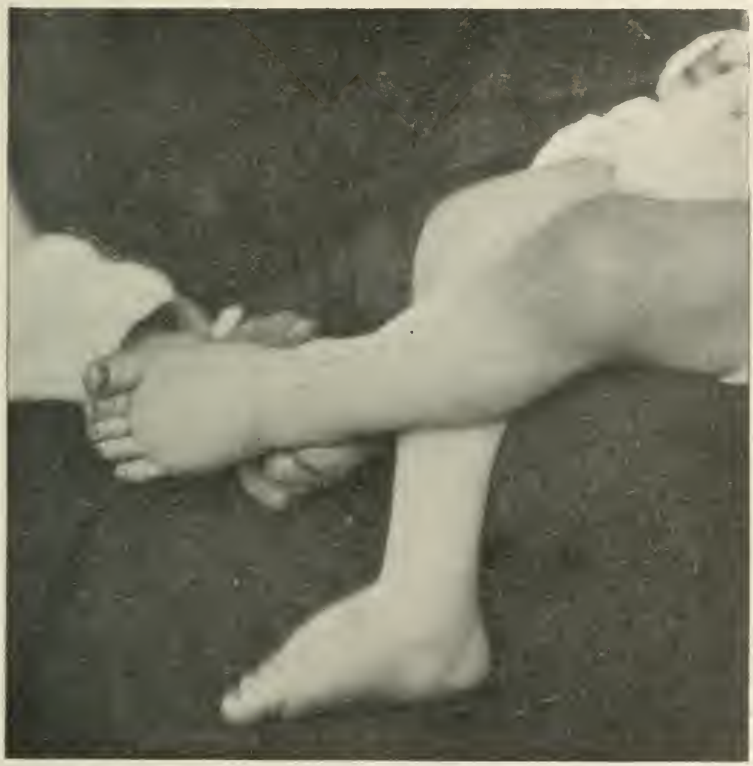


Fig. II. CONGENITAL ELEPHANTIASIS, WILLIAM G., AT ONE AND A HALF YEARS.

As therapeutic measures, massage and bandaging have been especially recommended, and the use of electricity has also been suggested. In mild cases such as I have described there is but little disability. The older child requires shoes of special form, but this has not been necessary in the case of the younger, and no systematic treatment has been employed except that the mother, when the older child was still an infant, practiced tight bandaging for some time without beneficial results. The confinement to bed in the hospital after circumcision was also attended by no change in the condition.

334 SOUTH SIXTEENTH STREET.

Scarlatinal Rash Limited to the Face.—(*Journ. de Cliniq. et de Thérap. infant.*) Lemoine reports the following cases: The patients came to the hospital from a district where scarlatina was prevailing. They were taken sick the night before entering with angina and fever, the angina being of the kind found in scarlatina, and the fever being always high, 103° to 105.5° F. The face is red and puffy, and the appearance is like that of simple angina. It is only after some days that the diagnosis is established. The redness persists after the temperature falls the next or subsequent day. But even the rash may be light and transient, as when it is general. After a few days, however, scaly or furfuraceous desquamation sets in and extends over the whole surface affected.

In the epidemic of 1895, out of 200 scarlatinal cases, 32 presented this limited eruption. Of these 23 presented no trace of desquamation elsewhere than on the face. The objection that a simple angina may be accompanied by an infectious erythema, is met by the statement that these cases usually come at the time of an epidemic of scarlatina. To meet the objection for other periods without epidemic, the author withheld his facts for a whole year and observed that, during 1896, of 93 cases of simple angina admitted, whether phlegmonous or pseudo-membranous, only 6 presented an erythema of the face, and of these 4 came from regiments which had furnished sporadic cases of scarlatina. Yet the author admits having seen cases of angina with simple facial erythema in the absence of scarlatina.—*American M.-S. Bulletin.*

A CONTRIBUTION TO THE QUANTITATIVE ESTIMATION OF FAT IN MOTHER'S MILK.*

BY EMILY LEWI, M.D.,

From the Clinic and Laboratory of Dr. Henry Koplik, Good Samaritan Dispensary, New York.

The various methods for rapid quantitative estimation of the fat in mother's milk, now in vogue, have for some years been regarded as only approximately correct and not to be relied upon. The processes now popular are those in which the Feser Lactoscope and Marchand's Butyrometer are employed; these have remained in favor because of the facility and rapidity with which the examinations can be made and the small quantity of milk requisite.

The possibility of rendering the Babcock centrifugal method practical for analyzing small quantities of mother's milk suggested itself. It was considered especially desirable to use the ordinary clinical centrifuge and do away with the necessity for a separate dairy machine. The Babcock apparatus requires 35 c. c. of milk for each examination if a control test is made, and this should always be done if the results are to be accepted. We think we have in the reduced Babcock method about to be described, a simple, quick and accurate process, necessitating the use of only 6 c. c. of mother's milk, inclusive of the control test.

For this procedure the apparatus needed is a reduced Babcock bottle, a pipette for measuring the milk and acid, a smaller 1 c. c. pipette accurately divided into cubic millimetres.† (See figures 1, 2, and 3.)

METHOD.—Fill the pipette to the meniscus (this represents 2.92 c. c. of mother's milk): introduce this carefully into the body of the bottle, so that the long thin pipette comes down into the body of the bottle. The pipette is cleansed, and refilled to meniscus with chemically pure sulphuric acid; the pipette is introduced as before. This precaution is taken in inserting the pipette so that at this stage no ebullition shall occur in the neck of the bottle and so invalidate the result. Next, fill the 1 c. c. pipette up to the sixth marking with a mixture of equal parts of fusil oil and concentrated hydrochloric acid; add this to the milk and sulphuric acid, and fill the bottle with equal parts of sulphuric acid and water. The bottle is placed in an aluminum receiver, and adjusted to the centrifuge. The specimens are revolved one-and-a-half to two minutes, and the reading is then taken. With the new high gear machine of Richards & Co., fifteen revolutions of the handle per minute suffice, each turn of the handle corresponding to one hundred and thirty revolutionsof the bottle.

---

* Read before the Section on Pediatrics of the New York Academy of Medicine, January 19, 1898.

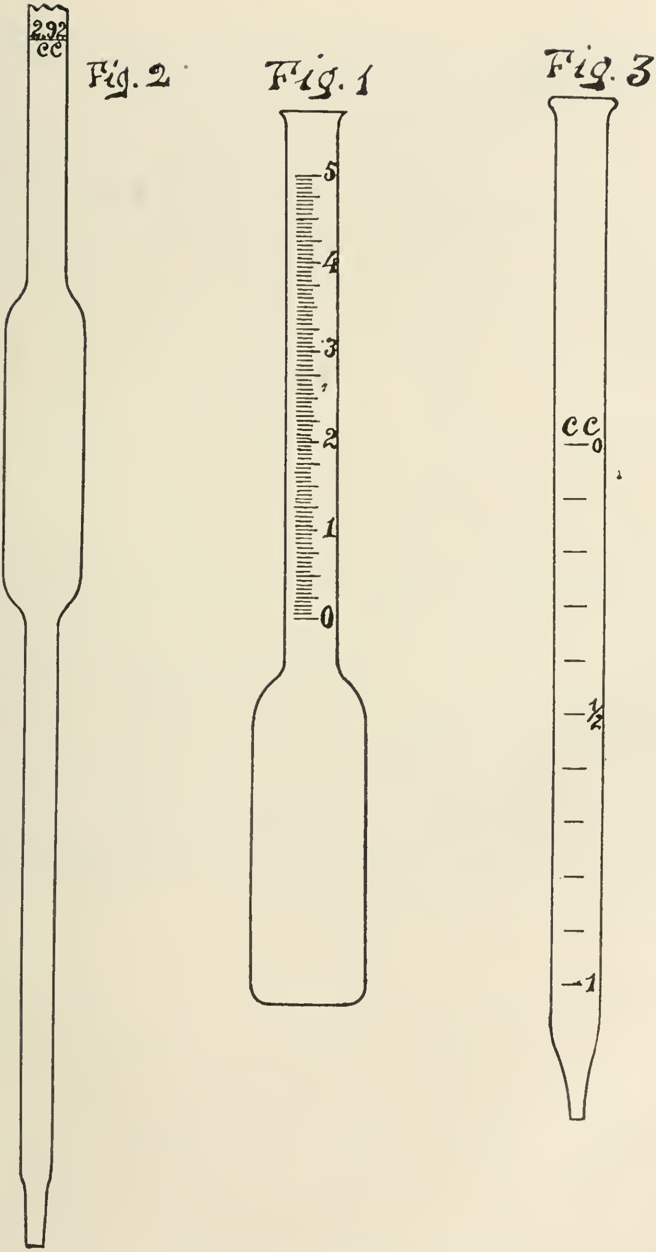
† This apparatus can be obtained from Richards & Co., of New York.

The chemical method just described is the Leffman & Beam process. A number of tests were made comparing the Babcock and Leffman & Beam methods. The latter was preferred because of its greater rapidity, yet equal accuracy. In the Leffman method the centrifuging once begun is continued without stopping until the test is complete. Leffman and Beam, in their monograph, state that the centrifuging from thirty to sixty seconds gives a complete reading; this was not found to be the case in these investigations; a longer time (1 1-2 to 2 minutes) was required to assure the separation of all of the fat. This may possibly be due to the extremely small lumen of the neck of the bottle in this reduced size.

It is desirable to call attention to several details in the technique. The acid must always be poured in on the milk, the heavier liquid sinks, and thus the liquids mix. Merck's chemically pure, sulphuric acid, of a specific gravity of 1083, gives uniformly satisfactory results. The commercial sulphuric acid is not to be depended upon. The oil and hydrochloric acid mixture can be kept fresh several weeks; when the solution turns dark a fresh one must be prepared.

Reading the percentage of fat: The fat is indicated by a clear, yellow, sharply defined zone in the upper part of the bottle. The space between each marking represents three-tenths of a percent. of fat, so that if the reading shows seven divisions, the milk contains 2 1.10 per cent of fat, 8 divisions 2 4-10 per cent., etc. To insure greater accuracy a small magnifying glass is used to lengthen the distance between the lines, allowing of the estimation of a half or a fourth of a division, so that 5 1-4 divisions would equal 1.57 per cent. of fat; 5 3-4 divisions equal 1.72 per cent. of fat, etc.

A series of analyses were made comparing this method with the results obtained by the Marchand and Feser processes. Breast milk was used, as a rule milk from one breast; occasionally a mixed milk was employed. Each specimen was in turn subjected to the three tests.



INSTRUMENTS EMPLOYED IN THE ESTIMATION OF FAT IN MILK, SHOWING ACTUAL SIZE.

TABLE I.

TABLE SHOWING PERCENTAGE OF FAT IN MOTHER'S MILK SUBJECTED TO DIFFERENT METHODS OF ANALYSIS.

DATED.	REDUCED CENTRIFUGE.	MARCHAND'S BUTYROMETER	FESER'S LACTOSCOPE.
June 19, 1897.	2.96 per cent.	2.76 per cent.	2.75 per cent.
" 22, "	2.96 "	2.46 "	2.25 "
" 22, "	2.66 "	2.05 "	2. "
" 24, "	2.66 "	1.95 "	2.25 "
" 26, "	3.55 "	2.05 "	2.25 "
" 26, "	4.93 "	4.19 "	4.25 "
" 29, "	2.66 "	2.05 "	2.24 "
July 3, "	2.96 "	2.46 "	2. "
" 3, "	2.07 "	1.64 "	1.3 "
" 3, "	1.77 "	1.44 "	1.25 "
" 7, "	4.4 "	3.37 "	3.25 "
" 9, "	3.85 "	3.17 "	3. "

A careful reading of the table shows that in every instance the percentage of fat was greater by centrifuge than by either of the other methods. In several of the series the difference was nearly one per cent. This was so great a discrepancy that doubts arose as to the accuracy of the method. It was therefore decided that a number of control analyses by some incontestable method be instituted.

A second series of analyses by each of the preceding methods was made, and in addition, a small quantity of each specimen of milk was examined independently by the Soxhlet quantitative method. Five c. c. of milk were weighed mixed with kraolin and extracted three and a half hours.

TABLE II.

	SOXHLET.	REDUCED CENTRIFUGE.	MARCHAND.	FESER.
Specimen I.	4.4 per cent.	4.4 per cent.	3.48 per cent.	5 per cent.
" II.	2.4 "	2.3 "	2.56 "	2.37 "
" III.	1.1 "	1.1 "	1.44 "	1.25 "
" IV.	3.9 "	3.8 "	3.17 "	3.25 "
" V.	4.6 "	4.7 "	2.35 "	3.80 "
" VI.	2.3 "	2.3 "	3.99 "	2.2 "
" VII.	4.4 "	4.2 "	3.68 "	4.2 "
" VIII.	4.7 "	4.6 "		3.6 "

These control examinations demonstrated the accuracy of the centrifuge results. The marked variations noted in columns 3 and 4 were due to errors in method; these were especially noticeable in specimens rich in fat. (See table I, specimens 6, 11 and 12.)

Comparing the Soxhlet and centrifuge columns, table II, it will be seen, that in three out of the eight analyses the results were identical; four times there was a difference of 1-10 of one per cent., and only once so great a variation as 2-10 of one per cent. No matter how rich in cream a milk may be, it can be examined without dilution and with great exactness. (See table II, columns 1 and 2, specimens 1, 5, 7 and 8.) Thus dilution as a cause of error is eliminated.

This method is equally applicable to cow's milk. Cream can likewise be centrifuged in these small quantities. As high as fifteen per cent. of fat may be indicated in these bottles.

The results which were obtained in centrifuging small quantities of mother's milk are surprisingly accurate. When we consider that the Soxhlet analysis is absolute, this reduced method is nearly perfect, and certainly in time will replace the tedious and complicated method of Soxhlet.

The advantages of this method are evident. An analysis can be made in five to ten minutes. The quantity of milk needed for two tests is only six c. c. The amount of fat in the specimen does not affect the validity of the result. Any clinician can make these tests, as the dairy apparatus is not necessary. In the above analyses, the clinical centrifuge used for urine sputum, etc., was employed.

TUBERCULOSIS OF THE MYOCARDIUM.*

BY ALFRED HAND, JR., M.D.,

Assistant Demonstrator of Pathological Histology, University of Pennsylvania; Pathologist and Physician to the Out-patient Department of the Children's Hospital, Philadelphia. From the Laboratory of Pathological Histology, University of Pennsylvania.

For a long time the heart-muscle was looked on as exempt from tuberculous infection, because of its frequent contractions and the consequent demand for an abundant supply of nutriment. Laennec, in 1826, mentioned the liability to tuberculosis of all the tissues of the body, including the myocardium, but he cited no case. Townsend, in 1832, was the first to record an observation of such a condition. The more recent reviews of the literature have been by Valentin (1894), Labbé (June, 1896), and Barié (December, 1896), the first collecting thirty-six cases, the second adding two, and the last adding one case. These cases, with Brosch's and the two to be reported in this paper, make the total forty-two cases on record thus far.

According to Barié, the majority of cases occurred before the fifteenth year, although but one or two cases have been seen in infants. The condition is, as a rule, secondary to tuberculosis elsewhere, the only cases reported as primary being those of Demme and Knopf.

Lancereaux has described three forms of themorbid anatomy: 1. The first is a large caseous nodule, usually multiple, sometimes single, varying in size from a pea to a hen's egg, resembling a gumma, but differing from it in the absence of a capsule of condensed fibrous tissue and in the presence of giant cells and bacilli. 2. A much rarer form is that of miliary tubercles distributed through the muscle, some being visible beneath the serous lining. 3. A third form, equally rare with the second, is genuine tuberculous myocarditis, consisting of a sclerotic process with giant cells and small round cells between the muscle fibres and bands of connective tissue. To the first and second groups respectively belong the new cases here reported.

With regard to the transmission, Saenger believes that the primary focus is in the mediastinal glands, and that the transmission is by the lymphatic channels. Barié admits this mode in some cases, but says that the veins may be the route, especially in the miliary tuberculosis. This seems to have been the way in the cases to be detailed here. Some cases may, of course, spread from tuberculous invasion of the pericardium.

---

* Read before the Philadelphia Pathological Society, January 27, 1898.

The ventricular walls are the usual seat for the tubercles, the next most common location being the wall of the right auricle.

According to Valentin, few bacilli are present, an experience corroborated by the present cases, but few being found in one, and all escaping detection in the other.

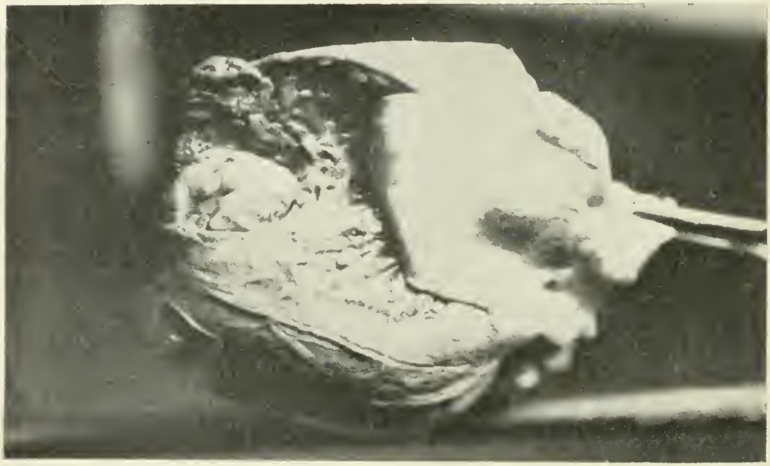
Tuberculosis of the myocardium may exist during life undiscovered and undiscoverable. There are no pathognomonic symptoms, and if any symptoms are present, they are those of a myocarditis. In some cases dyspnœa, galloping rhythm, tachycardia, bradycardia, arrhythmia, palpitation and cyanosis have been observed. Brosch has reported a case in which the tuberculosis spread from the mediastinal glands through the pericardium and myocardium, finally ulcerating through the endocardium, giving rise to Weil's symptom-complex.

To Dr. B. Alexander Randall I am indebted for the privilege of reporting the following case:

Case I. L. M., male, colored, five and one-half years, was admitted to the Children's Hospital in the fall of 1896 with a discharging wound of the left conjunctiva. The family history was negative and the child was said to have been well except for some convulsions. The wound led down to the bone, which was found diseased, and a very disgusting odor was associated with the discharge throughout the duration of the case. The appetite was good; somnolence existed during the day, but the boy moaned in sleep at night. Emaciation was progressive, and the day before death a suddenly developing protrusion of the eyeballs appeared. The *post-mortem* examination was made ten hours after death, rigor mortis being present. There were yellow, cheesy masses between the bone and the dura and also in the brain substance, upon which report will be made later. The brain was unusually soft and the cerebrum was bathed in a greenish pus. The cerebellum was covered with pearly miliary tubercles. The cavernous sinus was filled with a putrid thrombus, and the torcular Herophili was occluded by a chicken-fat clot.

There was extensive intestinal tuberculosis, Peyer's patches being deeply ulcerated, the tubercles showing on the serous surface of the gut. There was also an acute colitis, the mucous membrane being so deeply congested as to be almost black. The mesenteric glands were enlarged, but the other abdominal organs presented no signs of tuberculosis.

The right lung was the seat of miliary tuberculosis, while the left lung contained a cavity in the upper lobe. The heart contained chicken-fat clots in all the chambers. At the apex of the right ventricle, visible beneath the pericardium, extending through the wall and projecting into the cavity of the right ventricle was a yellow, cheesy mass the size of a hickory nut. This seemed to be of equal age with the other advanced lesions, the pulmonary cavity and the brain tyromata. Microscopic examination showed small round-celled infiltration, caseous degeneration, and tubercle bacilli.



THE HEART IN CASE I., SHOWING THE LARGE TUBERCULOUS NODULE AT THE APEX. (From a Photograph Taken by Dr. E. E. W. Given, Resident Physician.)

Case II. This case was observed while I was substituting in the medical wards of the Children's Hospital for Dr. Alfred Stengel. M. B., female, white, five and one-half years, was admitted May 24, 1897, with the history that she had had malnutrition when an infant, whooping cough ten months previous to admission, and catarrhal pneumonia two months before. This last illness had left a cough, and she had been steadily losing flesh. The examination showed a plain case of pulmonary tuberculosis with a distended abdomen, the superficial veins being dilated. Two weeks after admission signs of meningitis appeared, with convulsive twitchings of the muscles, first of the right side of the face, then spreading to the right arm and leg, and later becoming general.

At the *post-mortem* examination a most extensive general tuberculosis was found involving the meninges, the lungs with cavity formation, the liver and the peritoneum over it, the spleen, the kidneys, the omentum and, to a slight extent only, the intestines. The heart was normal in appearance externally, but on the interventricular septum, visible through the endocardium of the left ventricle, was a small pearly tubercle, showing on microscopic examination an aggregation of small round cells.

211 SOUTH SEVENTEENTH STREET.

The Significance of Palatal Deformity in Idiots.—Dr. Walter Channing contributes a paper (*Journ. Mental Science,*) with the intention of showing that the emphasis usually laid upon palatal deformity, by authors writing on the subject of degeneration, is misplaced. Out of 1,000 idiots, the author found 40.9 per cent. possessed of normal palates. In 11 per cent. the palates approximated the normal so closely as for all practical purposes to make them normal, while in 48.1 per cent. there was distinct abnormality. Out of 212 normal individuals, the palate was found to be structurally normal in only 22.1 per cent. A further fact noticed by the author in the palates of mentally defective children was that those over 12, even up to 15 years of age, often preserved the infantile character of the palate, so that a large number could be placed side by side with those of normal children below 12 years of age without any apparent difference. These observations of the palates of young children lead to the conclusion that at least up to 8 years of age there are in a large proportion of cases no essential differences to be observed between the palates of idiots and of presumably normal children. So-called characteristics of shape and size, which would serve to differentiate the former from the latter, are not sufficiently or definitely marked to be reliable for such a purpose.—*Edinburgh Medical Journal.*

CONGENITAL STENOSIS OF THE LARYNX.

BY GEORGE T. MACCOY, M.D.
Columbus, Indiana.

I report the following case of laryngeal stenosis occurring in practice recently, not with a purpose of throwing new light upon this subject, but simply to place another case on record and possibly attract the attention of other physicians to this supposedly rare condition.

I attended Mrs. G. in her fifth confinement on October 11th, 1897. The child, a well developed female, was born after a perfectly normal labor of about five hours duration. The umbilical cord was of ordinary length and did not encircle the neck.

As soon as the child was expelled it cried in a reasonably good voice and a noisy respiration was established. As the mother was needing some assistance, I gave the infant to the nurse as soon as the cord was severed.

Within five minutes I turned my attention to the infant and noticed that it was still breathing noisily and with great effort.

Supposing it was simply a case of obstruction from an accumulation of mucus, I resorted to the usual methods for freeing the larynx and trachea, but failed to relieve the breathing. On the contrary my efforts seemed to augment the distress. All efforts to relieve the child were then stopped, and after waiting about ten minutes, the breathing became easier, and the cyanotic appearance diminished. Thinking the trouble had ended, the nurse was instructed to proceed with the dressing of the infant, although the breathing was still labored. Before leaving the house the nurse again called my attention to the child, and I noticed that it was again cyanotic and that its breathing was very difficult. I then attempted to pass a soft rubber catheter into the trachea to relieve it of any obstruction, but failed to introduce it. Several attempts were made, but failure resulted each time. I then introduced my finger, but could discover no opening in the larynx. It then began to dawn upon me that I had a mechanical obstruction of some character to deal with and not an accumulation of mucus. The child cried and when put to the breast was able to nurse for a short time. The voice was not very hoarse.

When the child was about two hours old its breathing became quieter and easier, and I took my leave. Returning again in three hours, I was informed by the nurse that the child had had "four spasms of hard breathing," had nursed a few minutes, and cried a little. I was then asked by the nurse if children were ever born with the croup. I answered that I thought not, although this case certainly resembled it. I again examined the larynx with my finger, but failed as before to locate the opening. Consultation was asked for, but was denied, as the parents feared that to subject the child to any further examination would only increase its suffering. After this all effort to explore the larynx was abandoned. It was now 10 P.M., and after giving some instructions to the nurse, I left for the night. Returning at 8 A.M. the next morning I found the child very cyanotic and gasping for breath, both inspiratory and expiratory efforts noisy, still able to cry, and had nursed once during the night. Very severe spasms of dyspnœa occurred about once every hour until 6 P.M. From this time the breathing was continuously difficult and the cyanosis more profound, death occurring at 9 P.M., thirty-two hours after delivery. A *post-mortem* could not be obtained.

As this case occured during an epidemic of diphtheria in the city, its resemblance to laryngeal diphtheria was very noticeable, the only point of difference clinically being the absence of aphonia, a symptom that was usually present in cases of laryngeal diphtheria. The absence of any other evidence of disease or malformation, and its resemblance to true croup, led me to make the diagnosis of obstruction from pressure due to some abnormal growth. At that time I had not read Dr. O'Dwyer's article on Congenital Stenosis of the Larynx (ARCHIVES OF PEDIATRICS, January, 1898), or I should have suspected the true condition at once.

In looking over an obstetrical practice of twenty-five years, I recall a case seen in consultation about twenty years ago that very much resembled the one here reported. At that time a diagnosis of *cyanosis* was deemed sufficient to cover all the symptoms, and I suspect that deaths attributed to this cause were in some instances cases of congenital stenosis of the larynx. A knowledge of this fact may enable us to save the life of an infant that otherwise would surely die.

1127 PEARL STREET.

Clinical Memoranda.

A CASE OF ACQUIRED INFANTILE SYPHILIS.

BY JOHN RUHRÄH, M.D.,

Lecturer on Diseases of Children and Bacteriology, Physician in Charge of the Pasteur Department, College of Physicians and Surgeons, Baltimore.

Cases of acquired syphilis in infants, where the initial lesion is upon the genitals, are sufficiently rare to justify the reporting of individual cases.

The following case came under my care during my service at the Baltimore City Hospital:

M. C., age six months, white, well developed and well nourished child. Mother sought advice concerning a sore upon the infant's left labia majora. Mother and father of child perfectly healthy. Mother's sister, a woman of twenty-two, had syphilis in secondary stage, as did also her husband. The woman died last summer from spinal lesions, due to syphilis. The sore on the infant's genitals had been present for several weeks, the exact time was not known. When first seen the sore was about one centimetre in diameter and had all the classical features of a chancre. It was situated on the lower third of the left labia majora. There was general glandular enlargement and a very faint macular eruption over abdomen and back. This was in the spring of 1896. The diagnosis was confirmed by Dr. C. F. Bevan, Professor of Surgery.

The treatment consisted in first using one-tenth grain tablets of calomel four times a day. This dose proved too great and severe diarrhœa followed. The prescription was changed to hydrarg. cum creta, and after some experimenting, a dose of one-quarter of a grain was fixed upon. This was given three times a day for the next year and a half. Every month or two a break was made and a week during which nothing was given allowed. About the tenth month of the treatment the mother failed to give the child the medicine for about six weeks. There followed a macular eruption located principally on the back and abdomen. The spots were few in number, several centimeters in their greatest diameter and of a livid coppery red. The child at this time became very anæmic, fretful and had considerable disturbance of digestion. All these symptoms disappeared when treatment was resumed. It has been continued up to about one month ago, when a change to iodide of potassium was recommended. The child is robust and healthy, and has not the slightest suggestion of syphilis about her at present.

A point of interest is the fact that the mother insisted upon nursing the child in spite of the danger, and although she nursed it five months after the appearance of the chancre she remained free from contagion. No lesions were ever seen in the child's mouth during this period and the mother's nipples were apparently sound.

No information concerning the mode of infection of the infant could be elicited any further than that her aunt frequently attended her during her mother's absence.

593 MADISON AVENUE.

NASAL OBSTRUCTIONS SIMULATING ADENOID GROWTHS.*

BY PHILIP F. BARBOUR, M.D.,

Professor of Chemistry and Chief of the Children's Clinic in the Hospital College of Medicine; Visiting Physician to the City Hospital, Louisville Ky.

Last fall a gentleman brought his son, aged eleven years, to me with the statement that the boy suffered from malaria; that every three or four months he would have an attack of malaria, at least this was the diagnosis of the attending physician.

On examination I could discover nothing indicating malaria, except that he was rather anemic; there was no enlargement of the spleen; no sallow complexion. But I was struck with the peculiar physiognomy of the boy which seemed to be typical of adenoid growths in the pharynx. He had almost all the symptoms usually ascribed to such growths; a thick nose which was narrowed through the nares; an extremely high arched palate; front teeth rather bunched together, such as you see where there is great obstruction to breathing. He had at times an apparent deafness and an almost constant mucous discharge from his nose. He was studious and bright at times, but sometimes very dull and stupid and could not appreciate anything his teacher said to him.

---

* Reported to the Louisville Clinical Society.

With this characteristic history I came to the conclusion that it was a case of adenoid growths in the naso-pharynx, and without making any further examination referred him to a nose and throat specialist. Much to my surprise the specialist found that the naso-pharynx was perfectly clear and that the trouble was located in the anterior part of the nose. The inferior turbinated bones on either side were so hypertrophied that it was almost impossible for the boy to breath through his nose, and he was thus made a mouth breather.

This brings up the subject of the effect of adenoid growths in the pharynx upon the mental development of the child. Keys and Retzius years ago pointed out the connection between the lymphatic circulation through the nose, and the lymphatic circulation at the base of the brain. They claimed that the lymphatics at the base of the brain passed through the nose and naso-pharynx, that when an obstruction occurred it produced a characteristic lack of development, or stupidity, on the part of the child. Guye has recently reported a series of cases of what he calls lack of attention in the child and the adult as being due to an engorgement of the lymphatic circulation in the nose, stating that it is very important in children who are inattentive to have their noses examined to see whether there is not some local cause for this retarded mental development. This boy was a very striking example of this condition. His parents seemed to think that during certain weather, dry weather particularly, or in the fall, when the weather was settled, he was not troubled so much, but during the winter they noticed that his mental development was much behind other boys of his age.

In addition to the treatment he received from the throat specialist, I gave him iodide of mercury, cleaned out the lymphatic system thoroughly, and from that time to this he has never had another attack of so-called malaria. I believe these recurrent attacks were not malarial in character, but were due to lymphatic engorgement, cases often cited as instances of auto-intoxication.

During the year since I saw the patient, he has developed wonderfully, and his father says he is now quite a bright boy. I gave him, in addition to the mercury, iron and arsenic, because of his anemic condition.

The theory of insufficient oxygenation of the blood which has been offered as an explanation of these cases, rather than a lymphatic connection between the adenoids and the brain, is certainly entitled to consideration. It is more probable that both conditions are factors in producing such undesirable results.

In discussing the case Dr. William Cheatham said that he did not believe there could be a connection between the lymphatics of the nose and those of the brain which would cause the symptoms described. He thought they were due more to the want of aeration of the blood. The history of the case would suggest specific trouble. A child with such a condition never gets a good night's rest; he lies on his back with his hands over his head; breathes through his mouth, and fights for air all night. The air enters the lungs unfiltered and unheated and is not rendered moist enough. It is therefore unsuitable for the interchange of gases which should normally take place in the lungs. If the lymphatics of the nose were involved, we would have similar involvement of those of the brain. If that were true it would be an easy method of explaining the condition. As all know, our mental faculties are dull when we have bad colds in the head, with consequent obstruction of breathing. In such cases there is a want of proper aeration of the blood, and the same thing will apply to the child. The child might have no trouble while in a certain temperature, but when it goes from a warm room into the cold atmosphere, the nose will be obstructed and mouth breathing will be necessary. Again the nose may be obstructed in the morning, but after the child goes out into the air the nose will become free.

Dr. S. C. Dabney said that it was uncommon to have marked hypertrophy of the turbinated bodies in a child eleven years of age. Nasal obstruction in the child is far more often due to adenoids than to thickening of the nasal mucous membrane. Mental hebetude is a well known symptom of adenoid growths in the naso-pharynx, and has had many explanations offered for it. Guye, of Amsterdam, was the first to call attention to what he described as aprosexia. The idea generally accepted is that the trouble is due to imperfect breathing. There is another important factor in these cases usually, and that is imperfect hearing. It is erroneously called inattention. These children appear dull simply because they do not hear well.

REPORT OF TWENTY-NINE CONSECUTIVE INTUBATIONS FOR DIPHTHERITIC CROUP WITH TWENTY-SEVEN RECOVERIES, ALL TREATED WITH ANTITOXIN.*

BY F. E. WAXHAM, M.D.,
Denver, Colo.

All the cases were seen in consultation, and in all cases the operation was urgently required. Three were under two years of age, with two recoveries, or 66⅔ per cent. Eight were two years old, with eight recoveries, or 100 per cent. Six were three years old, with six recoveries, or 100 per cent. Six were four years old, with five recoveries, or 83⅓ per cent. Two were five years old, with two recoveries, or 100 per cent., and four were six years old, with four recoveries, or 100 per cent. Total, twenty-nine cases with twenty-seven recoveries, or 93.1 per cent., a mortality of only 6.9 per cent. This great reduction in the mortality is to be attributed to the full and free use of antitoxin in all the cases.

Pelvic Sarcoma in an Infant. Axel Johannessen (*Norsk Mag. for Laegevidensk.*) describes a case in which he found in the pelvis of a girl of eleven months a tumor occupying the left side of the concavity of the sacrum. The symptoms were difficulty in micturition and defæcation, and the diagnosis was made by rectal examination. The child died, and at the necropsy a resistent tumor of the size of the fist was found behind the rectum, between it and the sacrum and outside the peritoneum. It filled the whole pelvic cavity, and seemed to be attached to the connective tissue. It was a sarcoma, with both round and spindle-shaped cells with large nuclei. It was very vascular.—*British Medical Journal.*

---

* Abstract of a paper read before the Denver and Arapahoe Medical Society, January 25, 1898.

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

MARCH, 1898.

Edited by FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician,
Hospital for Scarlet Fever and Diphtheria; Consulting Physician,
Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

THE CIGARETTE EVIL AND THE SCHOOLS.

In a recent number of the Child Study Monthly this growing evil is discussed most intelligently by Miss Mary Darrow Olson, Principle of the McCosh School of Chicago. Every medical man recognizes the grave results which may follow the early and excessive use of tobacco, but the evidence presented by the author regarding its prevalence and effects upon school boys is somewhat startling. Her statements, however, are probably not exaggerated and are based, apparently, on very positive proof. It is only within the last five or six years that the habit of cigarette smoking has made its appearance among the boys of the public schools of Chicago, but during that brief period it has increased to such an extent that several thousand have become addicted to the habit. The majority of these boys, the author asserts, are so affected mentally and physically that they are unable to make further progress in their studies.

Miss Olson alleges that she has had personal knowledge of the effects of the habit upon at least 125 boys. These boys smoked from two to twenty cigarettes a day, and not more than ten of them were able to keep pace with their class; yet ninetenths belonged to educated and intelligent families. Among these boys were found nearly all of those pupils who were from two to five years older than the average age of children for the grade.

Wishing to obtain the consensus of opinion of the Chicago principals both as to the prevalence of the habit and its disastrous effects, and knowing that many had given the matter much careful attention, she sent a circular letter to every school in the city asking for specific information upon the subject.

Of the ninety-four schools giving full replies, six reported no cigarette smoking, three having abolished the habit through anti-tobacco societies. From the eighty-eight remaining schools, 400 occasional smokers and 2,420 addicted to the habit were reported with only 266, or eleven per cent. able to do the work of the class. Only six per cent. were able to do the work of the grade. As there are 235 schools in Chicago, including the high schools, and as eighty-eight of these report 2,400 cigarette smokers, it is safe to say, making a conservative estimate, that there are 5,000 cigarette smokers in the Chicago schools, not more than 400 of whom are able to advance with their class.

These principals of schools, who are all persons of experience and trained in the observation of youth, were unanimous regarding the stunting effects of the habit. Numerous quotations are given from their replies of which the following are but two examples: "Habitues never make a grade; after two or three years we pass them along." "They never make the grade decently; we let them go on at the end of two years."

Only one principal among 114 ventured the opinion that a cigarette smoker could make a grade a year. Regarding the effects of the habit on the memory, minds, morals, and health of the boys, there was but one verdict and that overwhelming, viz., that it was ruinous. The younger the boys—there were five hundred under ten years of age—the more disastrous did the result seem to be.

TOBACCO IN THE COLLEGES.

The opinions expressed by the teachers of Chicago regarding the effects of tobacco upon growing boys are corroborated by other observers. Dr. J. W. Seaver, Director of the Physical Laboratory of Yale College, in the last number of the Journal of Inebriety reports an extended series of observations made upon Yale students. A tabulation of the records of the students who entered Yale in nine years, when all of the young men were examined and measured, shows that the smokers averaged fifteen months older than the non-smokers, but that in size—except in weight, which was one and four-tenths kilograms more—they were inferior in height to the extent of seven millimeters, and in lung capacity to the extent of eighty cubic centimeters. The observed rate of growth at this age would lead us to expect that the smokers, from their greater age, would surpass the others by one kilogram in weight, two millimeters in height, and one hundred cubic centimeters in lung capacity.

The effect of nicotine on growth is very measureable, and the following figures are presented by Dr. Seaver as a fairly satisfactory demonstration of the extent of the interference with growth that may be expected in boys from sixteen to twenty-five years of age.

For purposes of comparison the men composing a class in Yale were divided into three groups. The first was made up of those who did not use tobacco in any form; the second consisted of those who had used it regularly for at least a year of the college course; the third included the irregular users. A compilation of these data shows that during the period of under-graduate life, which is essentially three and one-half years, the first group grows in weight 10.4 per cent. more than the second, and 6.6 per cent. more than the third. In height the first group grows 24 per cent. more than the second, and 11 per cent. more than the third; in girth of chest the first group grows 26.7 per cent. more than the second, and 22 more than the third; in capacity of lungs the first group gains 77 per cent. more than the second, and 49.5 per cent. more than the third.

These results are essentially the same as those obtained by Dr. E. Hitchcock of Amherst College, who observed a similar group of young men in a manner entirely independent. He says: "In separating the smokers from the non-smokers, it appears that in the item of weight the non-smokers have increased 24 per cent. more than the smokers; in growth in height they have surpassed them 37 per cent., and in chest girth 42 per cent. And in lung capacity there is a difference of 8.36 cubic inches in favor of the non-smokers."

The wide difference in lung capacity is very striking and points to the influence of tobacco on respiration. Inspiration is essentially a muscular act, and as such would be impeded by nicotine, and respiration would degenerate into an incomplete act.

As regards the effect of nicotine upon mental processes, Dr. Seaver refers to the fact that upon such a question statistics must be very cautiously handled. Out of the highest scholarshipmen at Yale, only 5 per cent. use tobacco, while of the men who do not get appointments, 60 per cent. use it. It is not entirely necessary to interpret this as meaning that mental decrepitude follows the use of tobacco. Dr. Seaver believes that it may mean that the kind of mind that permits its possessor to become addicted to a habit that is primarily offensive and deteriorating, is the kind of mind that will be graded low on general intellectual tests.

In training for athletic contests every influence of a motor-depressant nature is removed as far as possible; tobacco is one of the first things forbidden. As growth is one of the most important elements of functional activity during adolescence it seems logical to remove from the system every possible motor depressant. Tobacco is a most potent motor-depressant. Whatever one's opinions may be regarding its use by adults, individual observation and collective investigation prove beyond possibility of doubt that its influence during the formative and rounding out periods of life are baneful in the extreme.

THE MORAL EFFECTS OF CIGARETTE SMOKING.

The same writer also calls attention to the moral effects of the excessive use of cigarettes. Many boys were in the habit of going to cigar, stationery, and drug stores where there were gambling machines into which they could put a penny or a nickel. This caused a deck of cards to circulate, and those who got a "full hand" could get twenty-five cigarettes or ten cigars. Sometimes they played for money instead of cigarettes. These boys say that they never spent a cent for fruit or candy. Some admitted that they overcharged their mothers when sent on errands. One boy worked in a store and kept out a few pennies every day. Still others resorted to methods quite as bad.

One reason for moral obliquity among those having the cigarette habit will at once occur to every physician, though the writer does not refer to it. The cigarette smoker forms the tobacco habit. Such a habit is quite different from the natural desire of children for fruit or candy. It causes a craving which must be satisfied. The cigarette smoker is far more liable, therefore, to use dishonest means by which to obtain his daily supply of tobacco, than he would be to satisfy a desire for fruit or sweets. A peculiar form of dishonesty and perversion of moral sensibility follows drug habits of every kind. The morphine, the cocaine, the alcohol, or the tobacco will be obtained at any cost.

Attention is also called to another important means of corrupting the young. There are no words strong enough to condemn the methods of advertising employed by dealers in cigarettes. Buttons, bearing not only the coarest slang expressions, but in many instances vulgar and obscene sentences, are given away with each package, and boys and girls are often seen wearing as many of these as they can secure. Another method is to send out a band-wagon containing thousands of packages of cigarettes. After the band has attracted a procession of small boys, a man in the rear of the wagon throws out hundreds of packages which they carry off and smoke. Many boys learn the habit in this way.

The cigarette evil is unquestionably growing; Chicago is not alone afflicted. The subject is a very important one to the family practitioner. He should bear it in mind in the diagnosis and treatment of illness among young boys, and should use his influence, which is often very potent, in aiding to prevent the extension of the habit.

Dr. Letters in an article in the Dublin Journal of Medical Science upon the mortality of infants in Ireland says that they are allowed to perish in myriads by feeding bottles with foul rubber tube-fittings, by farinaceous substances which ferment and decompose as soon as ingested, by neglect, by exposure, by deprivation of the natural nutriment, by preventable causes like premature birth, by preventable diseases like diarrhœas and diseases of the respiratory organs. Infants want protection against that killing ignorance which does them to death by artificially-induced diarrhœas, by convulsions from improper feeding, by marasmus from starvation. Let the question of the saving of infant life receive from the profession that measure of study to which it is justly entitled, let the best means be formulated to stem the infantile death current in our populous urban centres, and let the Legislature be urged to deal with the subject in a spirit of humane comprehensiveness. It is unfortunately true that Ireland is not the only country to which these words might be applied.

The next meeting of the American Pediatric Society will be held in Cincinnati on June 1, 2, and 3.

Dr. Koplik has resigned his recent appointment as Pathologist to the Randall's Island Hospitals.

Bibliography.

Le Torticollis et Son Traitement, Par le Docteur P. Redard, ancien chef de Clinique chirurgicale de la Faculté de Médecine de Paris; Chirugien en Chef du Dispensaire Furtado-Heine; I volume in 8° écu de 252 pages avec 65 figures dans le texte. Prix: 6 Frs. (Georges Carré et C. Naud, Editeurs, 3 Rue Racine, Paris.)

The purpose of the author of this work is to gather together and present in permanent form the knowledge of the subject which has been the reward of scientific study of torticollis during recent years. The most marked advancement has been made along the line of therapeutics.

The first section of the book discusses the etiology of wry-neck, speaking in turn of the various causes which may produce this peculiar posture and giving the symptoms which attend each and distinguish one from another.

The second chapter treats of the pathological anatomy, not only of the neck itself, but also of various parts of the body whose development is checked or influenced.

Fully one-third of the volume is given to the discussion of symptoms, and is profusely illustrated. The symptoms are treated under two headings, torticollis acute and torticollis chronic. These are further subdivided into various classes. Diagnosis and prognosis are treated in comparatively brief chapters in which the author refers to the chapters on etiology and symptomatology, and seeks to assist the practitioner to draw just conclusions from the facts there recorded. The patients used for illustration are in large part children.

Treatment naturally occupies the last chapter, which constitutes a generous portion of the whole work. Electricity, massage, and surgery all have their place and are properly considered. There is also a description of a great number of mechanical appliances designed to hold the head in a normal position. This chapter is fully illustrated, the plates being especially clear and satisfactory. These plates are selected largely from photographs taken at Furtado-Heine Dispensary, and add greatly to the interest and practical value of the work.

Stirpiculture, or The Improvement of Offspring Through Wiser Generation. By M. L. Holbrook, M.D., Editor of the Journal of Hygiene. New York: M. L. Holbrook & Co., 1897. Pp. viii., 192. Price $1.00.

This little book contains much of real practical value. It contains, also, rather less that is theoretical and impossible of accomplishment than does the usual work on this subject. The desire to improve the race is a laudable one. During all ages there have been certain ones who have sought to accomplish this end. The methods advocated have been various and have been modified by the knowledge and development of the times in which they were proposed. Although the design of books on this subject is good and in the abstract present little ground for differences of opinion, yet they have largely been so visionary as to prove of little practical value. They have erred chiefly in making the mistake common to reformers in regarding a single cause as being at the root of the matter, and, hence, in advocating a single method of treatment. Some have regarded degeneracy as due entirely to faulty education and unfavorable environment. Others have attributed all to drink, and others to lack of prenatal culture on the part of the mother. Darwin and his disciples believe that natural and sexual selection have been the chief factors employed by nature to bring about race improvement. All these factors, no doubt, have been more or less effectual in modifying the character of races, but neither has acted alone in effecting that result.

It is a subject, it must be admitted, in which our knowledge is as yet very defective. This is due largely to lack of interest and to lack of scientific investigation and rational study.

The author has not fallen into the error of attributing to any one cause undue importance. He advocates an attempt to improve the race by means of suitable marriages, improved environment, better hygienic conditions and better food, the more extensive utilization of water and air, proper employment and exercise, and improved social conditions. He advocates the use of the knowledge we have gained in improving animals and plants as far as practicable in improving prenatal conditions and in the care of the infant after birth. Proper regard for these things will, no doubt, show a marked influence upon offspring, and it certainly seems that man should be able to some extent to make them tell to the advantage of future generations.

Handbook of Materia Medica, Pharmacy, and Therapeutics, including the physiological action of drugs, and special therapeutics of disease, official and practical pharmacy, and minute directions for prescription writing. By Samuel O. L. Potter, A.M., M.D., M.R.C.P., Lond., Professor of the Principles and Practice of Medicine and Clinical Medicine in the College of Physicians and Surgeons of San Francisco; Medical Superintendent of St. Mark's Hospital. Sixth edition fully revised and greatly enlarged. Philadelphia: P. Blakiston, Son & Co.; 1897, pp. xv., 900. Price $4.50.

This is one of the most complete, and in many regards, one of the best of the single volume works on therapeutics. The author attempts to include in his work the essentials of therapeutics and materia medica for the use of the practicing physician. The work is peculiar to itself in its arrangement and method of presenting the subject. The discussion on drugs is concise and practical. The section on pharmacy, embracing about seventy pages, is extremely practical, and the section on special therapeutics is worthy of particular mention. In his endeavor to make the work complete it seems to us, however, that the author has gone beyond the scope of his book in inserting tables on differential diagnosis and notes on temperature in disease.

Although the work on the whole is so excellent, there are portions requiring severe criticism. No subject is at present more important in therapeutics than serum treatment. The chapter on antitoxins, which of all chapters should have been thoroughly revised, has apparently not been re-written. No literature is quoted on diphtheria antitoxin more recent than that of the summer of 1895.

The dose for curative purposes is placed from 200 units in a light case to 800 for a severe one, "until 800 or 1000 or even 1500 units have been given." Several small doses repeated is the method of administration chiefly referred to. Such dosage is entirely inadequate; far larger doses than this were universally advised by all competent authorities many months before the date of this book. The unsatisfactory nature of this section of the work must be regarded as a serious blemish on an otherwise excellent book.

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

THE PRESIDENT'S ADDRESS.

By J. P. Crozer Griffith, M.D.,

January 11, 1898.

The Philadelphia Pediatric Society has just completed the first year of its existence and it has become my pleasant duty, as its President, to review the work which it has accomplished and perhaps to look forward to what may reasonably be expected of it in years to come. Comparing the uncertainty and doubt which attended the incipiency of the organization, with the success which has attended its existence hitherto, the society may indulge in a pardonable degree of pride. Perhaps a little of the story of its beginnings may not be out of place.

There had been for a long time in the minds of some of those now members of the Society, the conviction that there existed a pressing need for the arousing of interest in pediatrics in this city, for the concentration of the work which was being done, and for the stimulation of work which ought to be done in this branch of medicine. Yet everything seemed to be against the success of any scheme of forming a local association for the study of children's diseases. There existed, I believe, nowhere in the country an independent city pediatric society, and only one State society, that of Ohio. The pediatric section of the New York Academy of Medicine had become firmly established but it was only a branch of the main body, and, as is well-known, in that city there are an unusually large number of men having exceptional opportunities for the study of pediatrics and exceptional ability also, together with sufficient active interest to make such an organization succeed. At first nearly everyone in our city who was approached upon the subject of having a pediatric society here, had little but discouragement to offer. The thought arose that a pediatric section of the College of Physicians might be started, but an examination of the list of members of the college showed conclusively that there were not sufficient men in it actively enough interested in pediatrics to insure the success of the project. I spoke about the matter to one of the leading pediatrists of Baltimore and was assured by him that a pediatric society could not, he was certain, be established satisfactorily there, and that he did not think it could be in Philadelphia. With regret the whole project was, therefore, abandoned by those who had it in mind.

But it still remained fixed in the thoughts of some of those now among our members, that the need for the society was urgent, not only for the reasons already given, but especially for the sake of awakening in the younger members of the profession an interest in the important subject of children's diseases—a matter which could not have been accomplished by a college section, even if such a section had not been impossible for the reason given. With many misgivings, therefore, it was decided to call a preliminary meeting of a few men, in order merely to talk the matter over. About fifty notices were sent out and a number of persons spoken to, calling a meeting at the house of one of those interested, for November 19th, 1896. Although the time of the meeting was in the afternoon, when many men were naturally prevented from attending, to our surprise and pleasure between thirty and forty were present, and many detained had written encouraging letters. A change had already come over the spirit of our physicians. Only enthusiasm was shown, and it was decided without a dissenting vote to issue a general invitation for a meeting for organization. This was done. The meeting was held on December 22d, 1896, and was attended by between 125 and 150 physicians. The rest you know. Our constitution and by-laws were presented and adopted; our officers elected, and we settled down for work with an initial membership of 213. During the year this membership has grown constantly; twenty-nine physicians have joined us and three have resigned, making a present total membership of 239.

I cannot give exact statistics of the membership of other medical societies in Philadelphia even if this were desirable, but I think I am safe in saying that the Pediatric Society is among the largest.

Now as to the work done. Your officers feared we should have difficulty in getting together enough scientific material for our meetings, and that a vast deal of drumming up would be required. The contrary, however, has been the case. We have generally had more papers offered than we could well accommodate.

Of the character of the work done by the Society I feel gratified in being able to utter little but praise. During the year there have been forty-six papers read. A large number of these have been accompanied by the exhibition of cases, this making one of the most interesting features of our meetings. In all about thirty cases have been exhibited. Some of the papers have been of especial interest either on account of the labor which their preparation involved, or of the importance of the subject, or the rarety of the case exhibited. Without making any invidious distinction I may recall to your minds, as a few of many equally good, papers upon congenital hereditary œdema and upon angioneurotic œdema in children, both of them of great rarity, elaborate studies of glandular fever, the chemistry of colustrum milk, intussusception, the stigmata of degeneration in epilepsy, and enuresis, and a very practical paper upon antisepsis in the management of diseases of the skin in children. We have had one evening given up largely to the study of typhoid fever in infancy and childhood. At our first meeting we had the usual opportunity of seeing two cretins presented and of receiving reports of ten others. We have also had reported during the year two cases of arsenical neuritis in children following the use of arsenic for chorea. Inasmuch as probably not more than five cases of this condition have been published during the last few years, the fact that two of them have been reported at our meetings is a matter of interest.

The discussions upon the papers contributed have, for the most part, been lively and interesting. There has scarcely been an article read or case reported which has not awakened some discussion. This is an important matter, since free discussion is both pleasing to the reader of the paper and generally instructive to the listeners.

With the attendance upon our meetings we have every reason to be gratified. The largest recorded attendance, except upon the night of organization, has been 73; the smallest 24; the average 50. The actual attendance has, however, been decidedly larger than this, owing to the presence of visitors and especially owing to the fact that many members neglect the recording of their names as they enter the room. I would urge that this signing of the names be not neglected, as without it the secretary can have no accurate record of those present.

Finally, as to our plans for the future, and our prospects, we have already several papers promised for coming meetings. I am glad to be able to announce also that Prof. Osler has promised me to come to us early in the year and to read us a paper. Everything in fact is pointing toward a long period of interesting useful work. The Philadelphia Pediatric Society is an assured success. It has passed long since the stage of experiment. Nevertheless there is reason to remember that we are still in the "new-broom" stage, and that while suffering ourselves to join in self-congratulation, as we have been doing, we must not presume too much upon our strength. This society was not intended to be one in which only specialists take part. There should be continued, as in the year past, the freedom which everyone of us, I hope, feels of joining in the scientific proceedings. This should be pre-eminently the society for the young practitioner, for it is upon the interest and enthusiasm of the younger members that its ultimate success will depend.

Neither has it been the policy of the society to limit its proceedings to the study of *medical* pediatrics only; anything bearing upon the diseases of children in any branch—surgical. medical, or in the special departments—has a place.

I hope you will let me say that the evident success which you have made of this organization has made my term, as its first president, a great pleasure to me. To see it prosper has lain nearer to my heart than almost anything else during the past year. I feel sure that you know this, and that this has made you show me such uniform courtesy, and such tolerance of my presidential faults, of many of which I am well conscious.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, January 13, 1898.

J. Henry Fruitnight, M.D., Chairman.

Dr. Sara Welt-Kakels presented an infant with an abdominal tumor, apparently connected with the kidney.

Dr. W. B. Coley spoke of an infant of two and a half years in whom the diagnosis of an abdominal tumor had been quite puzzling. There had been a tumor extending from the free border of the ribs across the median line and down into the pelvis.

It was clearly cystic, and conveyed a marked impulse on coughing. Sterile pus was withdrawn on exploratory puncture. The case eventually proved to be one of spinal caries without the usual accompanying signs and symptoms. In 1895 he had removed by operation a large sarcoma of the kidney from a child, and although the little patient stood the operation well, it died eight months later of a recurrence of the disease.

Dr. H. Koplik said that in these doubtful cases the blood should be examined to exclude a tumor of the liver. The fact that the tumor in the case presented could be pushed forward from the lumbar region behind favored the diagnosis of tumor of kidney. Such tumors in young children were usually sarcomatous, and, in his opinion, should be operated upon as soon as the diagnosis has been made.

Dr. J. Fruitnight recalled a large cysto-sarcoma of the kidney, weighing seven pounds. As a last resort it has been treated with the erysipelas toxines, but with no special benefit.

QUANTITATIVE DETERMINATION OF FAT IN MOTHER'S MILK.

Dr. Emily Lewi read a paper on this subject. (See page 179.)

Dr. W. L. Baner remarked that in using the Marchand process at one time a tube had exploded, showing that the method was not wholly free from danger.

Dr. H. Heiman thought the results with Dr. Lewi's apparatus must vary with the speed of the centrifuge, and accordingly recommended the use of an electric centrifuge with a speed indicator.

Dr. Koplik replied that this was not necessary, as comparison with chemical analysis showed Dr. Lewi's method to be absolutely correct.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Meeting of November 9, 1897.

J. P. Crozer Griffith, M.D., President.

CONGENITAL ELEPHANTIASIS.

Dr. J. H. Jopson reported two cases of this character and exhibited the elder patient. For full report see page .

Dr. Van Harlingen.—The number of such cases that come under a single observer's view is naturally small. I can recall but one case, which I saw with Dr. Griffith. That case resembled this one very closely. As I recall it, however, Dr. Jopson has said about all I could say about that patient, excepting in regard to the fact that the leg was nearly cylindrical and looked like a log of wood. The ankle was very much swollen; while the foot was less tumefied. The affection was unilateral and in addition to the testicle being enlarged there was also some œdema of the face. When I saw the case for the first time I took an erroneous view of it, being inclined to consider it a case of hereditary bone syphilis and it was not until Dr. Griffith demonstrated the œdematous character of the swelling, which was firm and as hard as a board, that I came over to that view. In regard to the relation of such cases as the present one to angioneurotic œdema, they cannot be brought under that head at all. I am rather surprised to find how much confusion there seems to be in the minds of many in regard to the disease known as angio-neurotic œdema. That affection is much more closely allied to urticaria and local affections of the vaso-motor system of a similar nature than it is with any conditions similar to that we have seen here this evening. I think that the angio-neurotic œdemas should be entirely separated from congenital troubles, such as the present case. I should be inclined to think that this was due to some congenital disease or malformation of the lymphatics. I should like very much if we could get an examination of one of these cases. I am strongly inclined to believe that we should find some congenital change in the distribution or structure of the lymphatics.

Dr. H. R. Wharton.—I saw this child when it was a few days old, and at that time the deformity was very similar to the deformity he presents now. The only change I notice is that the swellings on the dorsal surface of the feet are softer and pit more readily on pressure. At that time the feet were as firm and tense as the legs are now. The prepuce also presented very much the same condition. The firmness was so great that I did not look upon it as an œdema, but thought it was a connective tissue hypertrophy; later I thought it might have some connection with lymphatic disturbance.

Dr. Alfred Stengel.—In reading a previous report of a case of this kind, although I had never seen one, it occurred to me that there might be a connection between this condition and the congenital elephantoid disease, or lymphangiectasia described by pathologists. An instance of the latter condition was presented before the Obstetrical Society by Dr. Reynolds Wilson, a few years ago. The condition is not very rare, but the fœtuses rarely live; they are monsters of the most pronounced type. The pathology is pretty well made out, and consists essentially in an enormous dilatation of the lymphatic spaces and channels. There is undoubtedly some occlusion of the latter, and retention of the lymph with infiltration of the tissues. A great hyperplasia of the connective tissue surrounding the dilated lymph spaces results. In external appearances the congenital elephantoid condition can hardly be likened to that before us, for in the former there are distinct cysts and a boggy softness, due to cystic distension. But essentially I conceive that the two conditions are very much the same, the difference being only the degree of distension of the lymphatic spaces. In the case of the kind presented I can hardly see any other explanation than the one suggested. There are none of the characteristics of cardiac or renal œdema, and it is certainly not in any sense allied to what we recognize as angio-neurotic œdema.

Dr. W. Reynolds Wilson.—I have twice reported lesions of the subcutaneous tissues and lymph spaces. The first was the case referred to by Dr. Stengel. In that case there was an excessive dilatation of the superficial subcutaneous lymphatics, to such an extent that the child presented a cystic condition—an absolute deformity which amounted to a monstrous condition. In the other case, a new-born infant presented great thickening of the skin without the hardness which would be met with in scleroderma and without the evident œdematous condition which is shown locally in this case. The child died and on making sections I found, in the first place, hyperplasia of fat tissue, of connective tissue, considerable dilatation of lymph spaces and a very unusual, hitherto undescribed, hyperplasia or hypertrophy of the subcutaneous muscular system. The hyperplasia of these muscles was so great that they presented strands running across the whole of the tissue and marking off the lymph spaces between them. I had occasion to go into the subject pretty carefully and there is no doubt that these conditions are embryonic in nature. The neurotic element is not of much importance in the study of the subject. The embryonal conditions, such as these, are associated in the first place with a hyperplasia of the connective tissue. with great dilatation of the lymph spaces and also often with a hyperplasia of the fatty tissue. In looking up the subject from an embryological point of view it was made clear that the fatty tissue and the connective tissue had as a basis one form of embryonic cell tissue and where you had a hyperplasia of one you very often had a hyperplasia of the other, so that œdema occurring, as in this case, is possibly associated with a myxœdematous condition and possibly with an increase of fatty tissue. It is possible that it is not a simple œdema, but that being an embryonal affection it is associated with these other hyperplasiæ.

Dr. A. A. Eshner.—I do not know that it will add much light to the discussion to raise the question whether cases of this sort belong to the large group comprehended in the dystrophies. There are some features in the case that suggest pseudo-muscular hypertrophy, but the boy appears to possess considerable muscular vigor and the knee-jerks are preserved. Cases of this kind, however, exhibit all degrees of severity. In some there is great loss of muscular structure, with substitution of fibrous and fatty tissue, while in others the conditions are quite the reverse. A therapeutic suggestion presents itself, and that is in connection with the use of thyroid extract in a case of this sort.

Dr. C. J. Hoban.—Dr. Wilson's remarks bring to mind four cases: The first was one of the lower part of the fœtus. It had undergone myxœdematous degeneration and upper part sclerosed. It was a very large child. The other three cases occurred in one family; all had undergone myxœdematous degeneration. The placenta in the three cases had also undergone myxœdematous degeneration and were about three times the normal size.

Dr. Jopson.—Dr. Wharton's remark that when he saw the child the œdema was harder than it is now, might be explained by the fact that in children œdema is often of the variety known as œdema lignæ, from the smallness of the inter-fibrillary spaces, and granting this is a simple œdema, we would expect it to become softer in character as the child grew older. I am glad the members agree with me that this condition is not purely nervous in origin, but that it must have some anatomical foundation. In two of Milroy's cases it was not congenital, but followed an injury. In each case the accident happened to the limb which afterward became enlarged, so that presuming the œdema is dependent upon some embryonic peculiarity of the tissues, it might be that the injury was all that was necessary to call it forth. As to its being of lymphatic origin, that is a point which we cannot at present decide. I do not think it can be purely myxœdematous. With the pitting on pressure and the increase in size on standing and walking, there must be an increase in the amount of serous fluid in the limb. As to the suggestion that thyroid might be of value, it would certainly be worth a trial in these cases. I do not think we have to do with any such condition as cretinism, as the intellect is good, and the health in every other respect is above par. Milroy advances the theory that the œdema might be due to a congenital absence of the valves of the veins in the lower extremities. In the absence of proof this can only go down as a suggestion.

Meeting of December 14, 1897.

Dr. F. A. Packard presented patients and read a paper upon two brothers with pseudo-hypertrophic muscular paralysis, and also presented a case of tetanus followed by recovery. (For full report see page 110.) He also presented a cretin, six years old.

DISCUSSION ON CRETINISM.

Dr. E. E. Graham.—As I understand the history, I think some of the points, such as the early age, are of special interest. Cretinism at eight weeks, unless I am much mistaken, is very uncommon. Usually the distinct symptoms are not noticed until the child is ten or twelve months of age.

Dr. M. H. Fussell.—At the first meeting of the Society I presented two cretins. Both of these cases have been doing remarkably well on thyroid. The younger of the two ceased his thyroid eight or ten weeks and came back with a decided amount of deterioration. It seemed scarcely possible that eight or ten weeks could make such a deterioration, but when one considers the remarkable improvement in a short time there is no reason why there should not be as much retrograde change in the same length of time.

Dr. D. J. M. Miller.—The deterioration in Dr. Fussell's case is due probably to the fact that it had not taken thyroid extract for some time. I believe it is generally thought that the extract must be continuously exhibited through long periods of time, possibly through the patient's life if the condition is to be kept in abeyance. Last spring I presented at the Section on General Medicine of the College a woman with myxœdema who had markedly improved under thyroid extract. The tongue was protruded, the expression was vacuous, in a word, she had the idiotic facies. That patient was treated with thyroid extract for four months, then for four months the woman had no treatment whatever, and when I returned to town I was surprised to find the improvement had continued, I do not mean to say by this that she had improved beyond the point I had last seen her, but she had not retrograded in any way. I believe there are some English cases to this effect, *viz.*, that the treatment by thyroid extract produces a permanent relief.

Dr. S. M. Hamill.—Koplik has recently written an article in which he has called attention to the congenital origin of these cases, a fact which he believes has not received sufficient consideration. He reports a number of cases occurring in early infancy. There have been a number of early cases reported in the English journals recently. Patterson recently reported three cases of this condition, two of which occurred in the same family. The first born was observed by the mother to have a peculiar appearance at seven months of age. It came under treatment at nineteen months of age a fully developed cretin. The second child was born a fully developed cretin and lived but a very short time. During the mother's succeeding pregnancy she was given full doses of thyroid extract and in consequence gave birth to her first healthy child. I think it is a mistaken idea that these cases do not develop very early in life.

Dr. Carpenter.—The cretin I showed at one of the earlier meetings has grown six inches in less than a year. It grew so fast for a while that it became bow-legged and developed symptoms of rickets. For a time I reduced the thyroid and put it upon hypophosphites—during this period the child did not grow taller. The child has done very well indeed, and is bright and talks and will go to store and do little tasks of that sort. It now has a thick head of hair, has cut all its teeth, and the fontanel has closed.

Dr. S. M. Hamill.—Dr. Carpenter's remark in reference to the bending of the bones recalls to my mind an article by Telford-Smith, which appeared in a recent number of *Lancet*, bearing on this subject. His experience was similar to that of Dr. Carpenter. The rapid growth of the bones resulted in a bending of the bones which had to bear the weight. He did not consider this condition rickets, in other words not a delayed perverted ossification, but on the other hand, a too rapid development of the bony structure. He makes the suggestion that in the administration of the thyroid extract, one should be careful to watch for the excessive growth, and if necessary to protect the limbs by the use of splints. to avoid too great an amount of exercise on the feet and to give the patient sufficient nourishment, of a nutritious nature, and plenty of fresh air.

Dr. F. A. Packard—One point I think important in this case is that the child is unable to swallow liquids without choking, while it can swallow semi-solids without trouble. It consumes large quantities of milk toast and bread soaked in milk, probably because it wants to make up fluids in its body. It is absolutely unable to chew, its teeth are stunted, some of them even now decayed. and the child crushes food with its tongue and the roof of mouth, which is eminently fitted for doing the work.

SPEECH DEFECTS.

Dr. G. Hudson Makuen presented five cases of defects of speech. He distinguished between stuttering and stammering and applied the term stuttering to the severer forms of stammering where speech is almost impossible or only possible after various muscular contortions which are by no means confined to the organs of speech but distributed pretty generally throughout the entire body. The first boy shown was a stutterer, three others were stammerers, and one a case of paralalia. The latter had continuous flow of voice but his speech was unintelligible. The prognosis he considered good as there was no impairment of cerebration. In treating speech defects Dr. Makuen considered training in the proper use of the vocal muscles the most important point, though this should be combined with removal of adenoids or other growths, or correction of any such defects as a short frænum linguæ.

In fifteen per cent. of cases seen by the speaker, fright had been active in causation. In thirty-two per cent. there were stammerers among relatives, and in thirty per cent. the origin might be traced to association with other stammerers and imitation.

Dr. E. E. Graham.—Several years ago in looking over Sach's book I was struck with the fact that he remarks that children who are late in speaking are mentally defective. He says that this condition is rarely noted by the mother, but if these children are examined by a medical man that almost always distinct mental defects are noticed. For instance, the boy that is here to-night did not speak at all until he was four years of age. According to Sachs, and in my experience, where children are backward in talking, one can almost invaribly find that they are not up to the normal mentally. If I understand the history of this older boy correctly he is now up to the normal mark mentally, and his case was certainly one of decidedly late beginning stage.

Dr. G. Hudson Makuen.—Dr. Graham has referred very appropriately to the lack of mental development in these cases of defective speech. It is undoubtedly true that the use of language is one of the chief means of developing the mind, and children who are slow in acquiring the faculty of speech are, as a rule, mentally dull. On the other hand development of speech seems to stimulate mental activity, and expression creates impressions upon the mind. I have reported a case in which there was a total lack of intelligible speech up to the nineteenth year owing to a congenital defect in the tongue and the boy was considered to be almost imbecilic. His speech was developed, however, and he is now well advanced in his preparation for college and his teachers tell me that mentally he compares well with other boys in the school. That there are exceptions to the rule, however, is shown by another case that I recently reported. The boy was fifteen years of age and had never been able to speak intelligibly and yet he was ready to enter the high school. His other faculties, both mental and physical, were well developed, and only that part of the brain which presides over speech was defective. He wrote a good hand and spelled very well, but his speech was a jumble of sounds unlike anything I have ever heard. He now reads and speaks almost as well as he writes. About five months clinical treatment sufficed to bring about the change.

As to the prognosis in cases of stammering, I would say that much depends upon the patient. Every case may be cured if he will be cured, That is to say if he will do the work which is necessary to a cure. Stammering is purely a physical habit, or a neuro-muscular habit is probably a better expression for it. The trouble exists in one of three places, or in all of the three places. It is in the cerebral mechanism or so-called speech centres, or it is in the peripheral mechanisms of speech, including the respiration, the vocal and the oral-articulating organs, or it is in the nerve tracts uniting the central with the peripheral mechanism. Of course it cannot be in one of these mechanisms without at the same time affecting the others to some extent. Every stammerer will tell you that he is nervous and many attribute their affliction to nervousness as the cause, but so completely does the neurotic element disappear oftentimes after the stammering has ceased that it would seem in many cases that the stammering is the cause and nervousness the result.

Dr. Packard referred to the form of breathing which has been illustrated here in these cases. I try to teach my patients the action and voluntary control of the more important respiratory muscles. Especially must they learn to voluntarily disassociate those muscles which elevate the ribs from those which depress them. The contraction of the diaphragm interferes with the elevation of the ribs and, therefore, it must be regarded as an expiratory muscle in speaking and singing. This is a point I think which is not generally recognized.

Dr. Rosenthal.—I am interested in a case which belongs to the group exhibited last, in which the question of heredity enters. I have a similar case in a female child, aged seven years, who until now is unable to speak so that she can be understood by any one except those that are brought constantly in contact with her. This is an inheritance from the father, who, until the age of twelve or thirteen years was unable to speak so that he could be understood by strangers. He acquired correct articulation late in life, and I remember his last difficulty was to pronounce the letter R, using instead the letter L. Other defects are still noticeable. This child, his first and only one, has all the defects he had, and what is surprising, has not acquired it by contact, for it has been brought up away from its father.

Dr. S. M. Hamill.—I should like to ask the relative susceptibility to treatment of these various forms of speech defects, because the type to which Dr. Rosenthal has referred seems to disappear as the patient grows older without any special treatment. It seems to me that at an early age it might be a very difficult form to overcome.

Dr. Miller.—It seems to me that most stammerers are neurotic or have neurotic antecedents. I recall a case I saw at the

Children's Hospital last winter. The child's father was a drunkard and its grandmother was an epileptic, its speech was stammering. The child before he began a sentence would make a series of voluntary movements with his right foot. He would tap it on the ground five or six times before he could begin the sentence and then he would begin it in the way Dr. Makuen has described as characteristic of stammering. This child had always been very nervous and its mother attributed its defect to heredity.

DR. M. H. FUSSELL. –In regard to acquired stammering I would like to relate the case of a boy who was one of seven, the oldest of these boys began to stammer long before the younger were born. He stammered until he was eighteen. When the younger children began to speak they stammered, and at the age of thirteen you could scarcely understand them.

DR. MARY ALLEN.—I have in mind a colored woman and her little boy who have difficulty in making the S sound. I always thought the boy acquired this difficulty from the mother.

The Use of Analgen in Infantile Therapeutics.—Dr. Moncorvo, from an extensive use of this remedy, chemically known as ortho-ethoxyl-anamona-benzoyl-amido-quinolin, concludes that: (1) Analgen possesses a well-marked antithermic action, and is an efficacious analgesic and nervine. (2) It is harmless even with young children, who take it readily because it is tasteless. (3) In the malarial fever of children from twenty days to thirteen years of age it has undeniable efficacy. (4) It is valuable as an antipyretic in acute tuberculosis and lymphangitis. (5) In chorea, hysteria and partial epilepsy it causes the muscular twitching to disappear and acts as a sedative. (6) It will be found useful for relief of pain of various kinds, neuralgia, Pott's disease and tuberculosis of the hip-joint. (7) It is always well borne, not giving rise to exanthemata, adynamia, vertigo, headaches or auditory disturbances. (8) In large doses or after prolonged use it produces a reddish-yellow color in the urine due to blood-coloring matter, but analysis fails to show either albumin or sugar. (9) The drug should be given in daily doses of from five to forty-five grains, either suspended in julep or in capsules.—*Bulletin Général de Thérapeutique.—American Journal of the Medical Sciences.*

Current Literature.

HYGIENE AND THERAPEUTICS.

Caillé, Augustus : The Modern Management of Diphtheria. (*The Post-Graduate.* 1897. Vol. xii., No. 10.)

In the modern treatment of diphtheria we rely upon (*a*) antitoxin and (*b*) supplementary treatment.

The treatment for diphtheritic inflammation consists in the *early* and *proper* administration of *reliable* antitoxin, supplemented by the naso-pharyngeal toilet. The time for discussing the pros and cons of antitoxin treatment is past; the specific curative power of this medicinal agent is an established fact. Behring's claim that if antitoxin be used early the mortality from diphtheria will not exceed 5 per cent., is borne out by the reports of competent clinicians all the world over. Opposition to anything so radically new as Behring's discovery, is one of the associating features in the evolution of scientific medicine. Vaccination and antiseptic surgery stand in evidence of this fact. Any practitioner who studies the collective investigation reports for 1896 and 1897, on antitoxin for diphtheria and croup in private practice, issued by the American Pediatric Society, and fails to use antitoxin because he "*does not believe in it,*" should not be entrusted with the management of a case of diphtheria, and the practitioner who *thinks* a case is mild, and waits for several symptoms before using antitoxin, utterly fails to grasp the situation, and will frequently be disappointed.

Antitoxin is indicated in doses of 200 units for immunizing exposed persons, and in doses of from 1,000 to 2,000 units to combat the disease: 1,000 units for very young children; 1,500 units for older children; 2,000 units in croup cases.

It should be employed at the earliest possible moment, and the dose repeated the following day and subsequently as often as is necessary. The author has given 10,000 units in one week to a child nine months old, and has seen no ill results. The dosage is expressed in units, and not in the serum quantity; the preparation having the highest number of units in the least quantity of serum, and from an *absolutely reliable source,* is to be preferred.

The injections are made in any region where a fold of skin can be picked up. The skin, the hands of the physician and the syringe must be *clean*. Any syringe will answer, but the best syringe is the one made entirely of glass, and now obtainable in the shops.

The writer also injects a curative dose of antitoxin in every case of *scarlet fever* coming under his notice, because this disease is frequently complicated with diphtheria, and he also administers a curative dose in case of *measles* and *whooping cough* if the throat shows the slightest appearance of a pseudo-membranous patch. It would appear rational to give an immunizing dose in puerperal cases, where a diphtheria case exists in the same house; also to children on whom an operation is to be done in the nose or throat and where the culture test shows the presence of diphtheria bacilli without clinical symptoms. Antitoxin is also indicated in *diphtheria of the eye*, which is, fortunately, very rare. The more common croupous conjunctivitis is not to be confounded with eye diphtheria, in which the eyelids are phlegmonous and hard.

As regards the combined use of *antistreptococci and antidiphtheritic* serums in cases of mixed infection, no positive advice can be formulated at the present time.

Local Supplementary Management.—The local treatment of diphtheria must be *mild*. Swabbing the throat in diphtheria is harmful, and should not be practised. Solutions used as gargles do not reach the naso-pharynx; the spray is only to be employed in cases in which force need not be used, *e. g.*, in docile children. The best way to cleanse the naso-pharynx is to pour the liquid into the nose from a spoon; if the nose is partly or almost completely stopped up, a blunt piston syringe, or a Davidson's or fountain syringe, must be employed. In septic cases the irrigation is best done as the children lie on the side in order to avoid any sudden strain and collapse. For the majority of cases, instillation by means of a spoon will suffice. This may be done every hour or two, and, if necessary, day and night, according to the severity of the case. If syringes are used the stream should be directed horizontally, and not upward. Syringes should not be used if bleeding follows each irrigation.

The following liquids may be employed:

Permanganate of potash—rose-colored aqueous solution.
Mercuric bichloride in water, 1-10,000.

Listerine, 1 to 10.
Salt water, teaspoonful to pint.
Lime water.
Alum water, 5 per cent.
Labarraque's solution in water, 1-20.

Peroxide of hydrogen has shown itself to be an active irritant in the hands of the author, and aids the spread of diphtheria, and should therefore not be used in diphtheria.

Any of the above liquids may be used as a gargle when children are able to gargle. *Excoriations* at the angles of the mouth, and at the nostrils, usually heal under camphor ice.

Antitoxin, with mild local treatment and judicious stimulation, will suffice for ordinary cases seen in good time; but as cases will come under observation, in which valuable time has been lost in temporizing with household remedies, the physician will not be spared the management of various *complications* which must engage his attention.

The local antiseptic power of a teaspoonful of medicine, as it glides over the tongue and down the œsophagus, is practically *nil.* The yellow chlorate of potassium and iron mixture, and the mercuric bichloride mixture will not be necessary where antitoxin can be had, and should under no circumstances be given to a patient with an irritable stomach. As an aid to digestion the following mixture is efficacious: ℞ Essence of pepsine, ℥ ii; acid muriat dilut. ʒ ss. Teaspoonful four times a day.

In septic cases, five drops of the tincture of chloride of iron may be given every four hours.

For stimulation, whiskey, American Tokay wine, champagne, coffee, strychnine gr. $\frac{1}{0}$, may be given three times a day, or camphor, gr. ½ to 1, three times a day, benzoate of sodium and caffeine, dose, grs. 1-3, also subcutaneously dissolved in water, camphorated oil and ether, equal parts, 5 to 15 drops, subcutaneously. When the stomach is irritable, stimulating drugs can be given subcutaneously or per rectum.

High temperature can be reduced by cold and luke-warm sponge and tub baths. To give an antipyretic drug regularly every two or three hours is a very bad practice; one or two doses in twenty-four hours, particularly at night, are serviceable. From 3 to ten grains of phenacetin with ½ grain caffeine or lactophenin with caffeine in the same dose may be given. Antipyrin is a safe antipyretic, and as it is soluble in water, from 3 to 7 grains can be given per rectum. In cerebral unrest an ice cap is advisable. Quinia should never be given as an antipyretic in any but malarial disease.

In cases of incessant vomiting, stop all internal medication and give only 1 to 2 drops of tincture of iodine in sweetened peppermint water every hour or two, or, wash out the stomach.

Albuminura and nephritis are frequent complications of diphtheria. A stiff dose of calomel and jalap, and one or two warm baths a day to promote diaphoresis, will be the treatment in such conditions. In nephritis, with dropsy as a sequela of diphtheria, an infusion of digitalis may act as a diuretic by improving the circulation.

Convulsions. Initial convulsions indicate intense infection or nervous reflex irritability, for which an enema, a warm bath, and hydrate of chloral, grs. iii., and potassium bromide, gr. v., are indicated, per os or per rectum. Terminal convulsions, indicating heart failure and cerebral inanition, give an unfavorable prognosis. A warm bath and stimulants are here indicated; 5 drops of camphorated oil and 5 drops of ether subcutaneously every few hours.

Pseudo-membranous conjunctivitis is occasionally seen in severe diphtheria cases. This readily yields to ice compresses and the boric acid spray. In true *diphtheria of the eye*, in which the eyelids are much swollen and indurated, antitoxin must be used in large doses.

Otitis media. due to an extension of the septic process through the Eustachian tube, is frequently observed, but the earache is not nearly as intense as in ordinary otitis media and rupture of the drumhead takes place readily. The ear should be cleansed with mercuric bichloride solution 1.5000, or a warm boric acid solution with cocaine, or menthol in sweet almond oil (ʒ j to ʒ iv.) should be instilled.

Hemorrhage from sloughing of the tissues is a very dangerous and distressing complication. If possible, the bleeding spot should be located by means of a strong light, and directly cauterized with the actual cautery, lunar caustic, chloride of zinc, alum solution, or antipyrine and tannin. The styptic iron preparations are not so applicable on account of the large grumous blood clots which invariably form.

Phlegmon and induration of the tissues of the neck, with indistinct fluctuation of cervical lymph nodes, are best managed by a large incision through the entire dense and thick skin down to the glands. The latter are usually in a friable, spongy state with little pus spots scattered through the tissue, and can readily be broken up by pushing a blunt director or dressing forceps through the capsule and sweeping it around in various directions in order to break up the necrotic tissue. Make one abscess cavity which can readily be drained by means of iodoform or bichloride gauze under a moist dresssing. The neighborhood of such a diphtheritic and gangrenous wound occasionally has an erysipelatous appearance, which usually subsides under the application of cold lead lotion.

Recently formalin vapor has been extensively used for disinfecting sick-rooms and their contents, and, as far as the author's experience goes, he considers it to be a powerful disinfectant, far superior to sulphur. Formalin vapor is generated in an apparatus which permits the gas to be discharged by means of a tube through the keyhole into a room which is otherwise tightly closed. Quite recently formalin lamps have been introduced for use in families, in which formalin is generated by heating tablets of para formaldehyde over a lamp.

Woods, Hiram: Examination of the Eyes of School Children. (*Maryland Medical Journal.* 1897. Vol. xxxviii., No. 3.)

This very important article is based upon wide experience in examining the eyes of Baltimore school children. The author is of the opinion that the schools he has examined are lacking in facilities for properly seating children. Not only are the desks not always arranged to secure the best advantage from existing sources of light, but in some rooms they are too close together and are of such sizes as to make it practically impossible to properly seat. There are three sizes of seats and desks. They are of the average measurements for the ages of the grades and of good pattern and design, but in the same grade there are children of different ages, and even children of the same age are not always of the same size.

In the schools visited the desks were arranged for the most part at a slightly minus distance. There were, however, plus distances, too, and doubtless would have been more had space permitted. Fortunately, the minus distance is in the interest of space economy and the difficulty the child has in getting in and out prevents its being carried too far. The need is the adjustable single desk. It can be fixed for the child after measurements have been taken; it occupies no more room than those now in use and is as cheap.

The author speaks of the need of a modified course for children with reduced visual acuity. With some scholars asthenopia persists after correction of refraction error. The cause apparently lies in the fact that to keep up in their work all their time is demanded to the exclusion of recreation and exercise, and shortening of hours for sleep. Nor was it clear that either indolence or misjudged use of time was responsible. It seemed that the curriculum demanded more than the children could properly attend to. Such cases were found chiefly among children in the higher grades of the female grammar school.

The author thinks that his work, so far, justifies these conclusions:

1. There should be required on entrance, or soon after, a certificate from a physician or hospital of recognized standing, that the child's eye condition justifies school work. This should certainly be demanded after the school examination has shown vision to be lower than $\frac{10}{30}$ in the better eye.

2. A modified cirriculum should be adopted for children whose eyes are incurably defective.

3. Adjustable single desks should be substituted for those now in use; precautions taken in selecting sites for new buildings and in their erection, for proper lighting of rooms, and defects in old buildings remedied.

SURGERY.

Lloyd, Samuel: Radical Cure of Hernia in Children. (*Post-Graduate.* Vol. xii., No. 10.)

The use of the truss, the author believes, should always precede other treatment unless strangulation is actually present. The truss, to be successful, must be fitted carefully, so that it will not cause irritation of the skin or strangulation of the spermatic vessels, and yet it must be so simple in construction that any mother or nurse, no matter how ignorant, can be taught to apply it. It is essential that it be applied as soon as the hernia is discovered, and then every possible precaution must be taken to prevent another descent of the hernial mass, for each time the ring and canal are distended the probabilities of a cure by this means are lessened. At the same time we must take into account the condition of the other ring. Statistics show that a congenital weakness in one ring is apt to be accompanied by a similar condition on the opposite side, and while no hernia may be present at the time of observation, one may appear later in life.

Sinclair White, after reviewing 127 operations on children without a death says: "When the careful and continuous use of a truss for twelve months has failed to effect a cure, or when, from any cause a truss cannot be efficiently worn, I have no hesitation in recommending operative interference for the following reasons: (1) Inguinal hernia in children is, as a rule, of the congenital type, and is due to a developmental defect in the abdominal walls, which can be remedied by an operation, and in operating we are merely effecting that which nature has failed to perform. (2) The risk to life entailed by the operation is remarkably little and well worth encountering in the endeavor to rescue our patients from all the dangers, inconveniences and expense incidental to a rupture. (3) The results obtained have been very good."

After a careful application of the truss for one or two years we will always find a certain number of cases that have not been cured, and these cases had best be treated by operation. In addition to these there will always be a certain number where the application of a truss is impossible, as, for instance, where the parents or guardians of the child are either too ignorant or too careless to properly attend to it, or where the canal is occupied by a partially descended testicle, or where the hernia is irreducible, or the rings are too large to allow of satisfactory retention. There may also be a hydrocele of the acquired or congenital types, or some disease of the testicle or cord which would prevent proper closure of the rings and contraction of the canal. Under these circumstances operation becomes a necessity, for without it the patient is in constant danger of strangulation.

There are few operators who would think of interfering until mechanical measures had been thoroughly tried. By this is meant the proper application of a truss which absolutely prevents the escape of the hernia; anything more than this is unnecessary torture, anything less is a useless expenditure of time.

In reducible hernia, with a very free ring and no apparent danger of strangulation, we may, perhaps, if we have the patient under efficient supervision, wait for a convenient time, but without these conditions operations should be done as soon as possible. Strangulation, in spite of statements that have been made to the contrary, does occur in children.

Coley considers that the indications for operation are: (1) Cases of adherent omentum; (2) cases complicated with reducible hydrocele; (3) cases irreducible or strangulated; (4) cases unable to obtain the care and attention requisite for successful mechanical treatment; (5) cases where mechanical treatment has been faithfully tried for a number of years without benefit. Broca, of Paris, does not believe that the truss treatment gives results at all comparable with operative treatment. He says that it frequently fails and more frequently it produces an apparent recovery, but the hernia returns after a varying period of time. Cure is possible but not the rule, according to Broca's experience, and, besides, the truss must be worn day and night for many years at the end of which the result is not satisfactory. Bittner also believes the operation preferable in children to the truss treatment, because, (1) there are those which require the constant wearing of a truss; (2) there are herniæ which cannot be held up by a truss on account of the size of the internal ring; (3) there are occasionally severe complications following the use of the truss in these cases; (4) trusses are to be avoided, if possible, since their effect on the social and mental condition of the patient is frequently great; and, (5) in all cases of strangulated hernia the radical operation should be performed.

In looking up somewhat hurriedly some of the statistics in regard to the results of operation in children, the author finds that in children under fifteen years, Bittner has operated on thirty-four cases, with thirty-eight herniæ, with one death and one relapse. Coley reports 254 cases, with two deaths and nineteen relapses, while Broca has had 477 cases, of which 395 were for inguinal hernia in boys, with but one death. Belizet has also done 105 operations with but a single death, and Poore twenty-five in twenty-four children, with nineteen good results, six not traced, and no deaths. Szumann has reported five cases all cured, and Karewski 9, with the same successful result. Bassini reports six cases, with five cures and one relapse, and the author has had thirty-eight, with one death and one relapse. His cases ranged between the age of six months and ten years.

This gives a total of 1,347 cases, with but five deaths, which surely shows a fractional percentage small enough to allow us to advise operations in children with considerable confidence.

Colpatt: Retropharyngeal Abcess in Children. (*Jahrbuch für Kinderheilkunde.* B. xliv., h. 3, 4.)

Six cases are reported with ages ranging from two months to two years. Three were under one year. Two were in the second year, and one was two years old. The disease was attributed to either purulent otitis or influenza. Two symptoms were prominent in all, difficult deglutition and interference with respiration. There was loss of flesh, and fever. The voice had a nasal twang. The neck was usually rigid. In a small proportion of the cases, there was a swelling at the angle of the jaw.

The treatment advised is free incision through the mouth.

Fischer: Gonorrhœa in Childhood. (*Jahrbuch für Kinderheilkunde.* B. xlv, h. 2, 3.)

The vaginal secretions from fifty-nine children with vulvovaginitis were examined. Fifty showed the presence of the gonococcus. Thirty-six of these were under six years of age. The clinical signs were practically the same in all. There was intertrigo, swollen labia glued together by the purulent secretion and urethritis. In about one-third of the cases the Bartholean glands were enlarged, suppuration of which occurred in one. The inguinal glands were frequently found enlarged. Fever was present in a very few. In fact, the subjective symptoms were few. In duration the disease is tedious. It may last for weeks or months, the urethritis continuing longer than the vaginitis. The treatment consisted of rest in bed, sitz bath with potassium permanganate, and douching with a one-to-seven per cent. sol. zinc sulphate. From one-half to one pint should be used at each time. Neither the tubes nor the uterus were involved in any of the cases.

Von Hollander: Extirpation of Uterus and Vagina in a Nine Months' Old Baby. (*Jahrbuch für Kinderheilkunde.* B. xlv., h. 2, 3.)

The operation was undertaken because of an extensive spindle-celled sarcoma of the vagina. The operation which was carried out with great difficulty was completely recovered from in four weeks. Three months have passed since the operation without relapse. A similar operation in the young infant was performed by Schuchard. A portion of the vagina was removed on account of a sarcoma which had developed in its walls. The disease reappeared in the remaining portion of the vagina after six and one-half months. Total extirpation of both uterus and vagina was then undertaken with a successful result. After an interval of ten years, there was no return of the disease.

Hoffman, C. S.: Ovariotomy in a Child Three Months Old. (*American Journal of Obstetrics.* 1897. No. 237.)

The diagnosis in this case was ovarian tumor and from the condition of the patient and the rapid development of the tumor an early operation was advised. A tumor was removed which contained from six to eight pints of liquid, besides a fleshy mass which weighed two and one-half pounds, making in all a tumor weighing from eight to ten pounds. There was extensive adhesion of the tumor in front and to the left side with the parietal peritoneum. The pedicle was between two and three inches long and was attached to the left ovary. There was comparatively no bleeding. The abdominal incision was not quite four inches long. The womb was enlarged to near the size of the non-pregnant womb of an adult. The patient was under the anæsthetic just fifty-five minutes. A considerable portion of this time, however, was consumed in preparing the abdomen for operation, as she was so restless and fretful that this could not be done before. Twice the operation had to be suspended on account of the threatened collapse of the patient. The patient rallied so well from the operation that the author felt hopeful of the result, but the irritability of the stomach, which was so troublesome before the operation, now became more persistent, and in her weakened condition, she died from exhaustion, having survived the operation thirty-three hours. A microscopical examination of a portion of the tumor by Dr. George W. Dobbin, of Johns Hopkins Hospital, indicated it to be a cystic sarcoma.

As there are no other cases reported of a similar nature, it can, the author thinks, rightly be inferred that this was one of great rarity.

Dermoid tumors of the ovary usually are small and seldom occasion trouble until puberty, while this was of large proportions and very rapid growth.

The author believes he is justified in saying that this is the youngest patient ever operated on for a tumor of this character. Since writing the report Dr. Hurdon referred him to the case of Busch, recorded by Olshausen, where a child twenty-four months old was operated on for the removal of an ovarian cyst. The operation was followed by death. The kind of tumor is not stated.

Bangs, L. Bolton : Stricture of the Urethra in Male Children. (*Medical Record.* 1897 Vol. lii., No. 14.)

It is sometimes remarkable with what rapidity evidences of severe and intractable stricture follow an injury upon the perineum of a child, if it is not properly treated. Retention of urine is, of course, often reported immediately; but within a short time after the "apparent cure of the stricture by soundings," incontinence, the formation of fistulæ, and distressingly frequent urination make their appearance.

In regard to the subject of acquired stricture, it should be observed, first, that the etiology of these cases is often very obscure. In some we are able to obtain a positive and direct history of gonorrhœal infection; in others, vague statements from parents point to some "inflammation" of the parts; while in many no catarrhal or blennorrhagic antecedent condition can be ascertained. From the observation of certain cases of stricture in young adults, the author has been led to form the opinion that many of these obscure cases will be found to be due to an extension into the urethra of a balano-posthitis. This opinion is not based upon conclusive evidence, but he has had under his care young adults with the subjective and objective signs of stricture of the urethra who gave a long history of dysuria and of memories from childhood of inflammations about the prepuce, but of no disease acquired from nurse or others.

Of course, it is easy to cast a cynical doubt upon the statements of these individuals and suspect their chastity, but, being interested in the subject and having had some experience in regard to stricture of the urethra in boys, the author has made the closest possible investigation with an unbiased mind and with the determination to arrive at a just conclusion. He has been compelled to attribute many strictures to non-venereal sources in childhood.

MEDICINE.

Editorial: Progress in Pediatrics During the Victorian Age. (*British Medical Journal.* 1897. No. 1903.)

Those who are able to look back for no more than half the period over which the Queen's reign has extended, will yet be able to perceive that among the social changes which have come about have been some which nearly affect childhood. More thought and more skill are devoted to their education, and greater care to the preservation of their health, while greater anxiety is displayed to make the period of childhood happy. If the tendency of the age has been such, it is not surprising that it should have witnessed also, on the part of the medical profession, a greater disposition to study the pathology, the etiology, and the treatment of disease as it occurs in childhood. The development of interest in the subject within the last fifty years, and the growth of knowledge in connection with it, has indeed been remarkable. The gains have been made simultaneously in this country, in Germany, in France, and in America.

That this assertion can truly be made is due to the scientific spirit and unselfish devotion exhibited at an early date by Dr. Charles West, who may justly be called the founder of the study in this country. By his writings, which have been translated into many languages, he has been one of those who have influenced most powerfully medical opinion throughout the world, towards a more serious apprehension of the importance of acquiring a better knowledge of the causes and the cure of the diseases most prone to afflict childhood. It is, therefore, with great pleasure, that we are able to print below some brief reminiscences which Dr. West has been good enough to write in response to a request for his assistance:—

"At the time when I settled in London, in the year 1838, the only English books specially treating of the diseases of children were those of Dr. Underwood and Doctors Maunsell and Evanson: and the only institution specially set apart for children's diseases was the dispensary in the Waterloo Bridge Road, where I worked for twelve years. During that time I preserved a record of 600 cases and 180 *post-mortem* examinations, made at the homes of the poor in Lambeth and Southwark.

"The results of these observations appeared partly in the medical journals, and completely in the *Medical Gazette*, as 'Lectures on the Diseases of Children,' which were delivered at the Middlesex Hospital, and were afterwards published, in 1848, as a separate book. This book has since gone through seven editions, the last of which was based on the record of 2,250 cases. and 650 *post-mortem* examinations, and appeared in 1884. This book has gone through five editions in America, four in Germany, two in France and two in Italy, and has also been translated into Spanish, Danish, Dutch, and Arabic.

"When the Hospital for Sick Children, in Ormond Street, was opened, in February, 1852, no other children's hospital existed in England or in America. At present there are forty-three in England, Ireland and Scotland, and I know not how many in America—all lineal descendants of the Ormond Street Hospital, which opened with fourteen beds, and one little girl—the solitary in-patient.

"The foundation of a hospital for sick children was the dream of my youth, and the occupation of thirty years of manhood. I looked forward to helping to organize the institution which is housed in the building planned by me in conjunction with my dear friend (the late Mr. Edward Barry), and which, like the old hospital. was fitted and furnished throughout by me, and I trusted that when old age came I might be allowed to linger about the place to which my heart turns as a parent's towards his child.

"This happiness has been denied me to my lifelong heartbreak; and it is now too late for me to hope for more than this —that when I have passed away those to whom my memory will still be dear may hear my name sometimes mentioned as the founder of the first children's hospital that ever existed in this country, and as having given the impulse to that movement which has led to the children's hospitals in almost every town in England and America, and has enriched the once scanty literature of the subject with contributions of surpassing value.

"That, with increased opportunities for observation, knowledge too would increase was certain. The evidence of this is seen in various papers communicated to the *Transactions* of societies and to medical journals, as well as in systematic works. Of both, the merit is in many instances very great, and to me in my old age it is a real pleasure to see some of my mistakes corrected, some of my doubts answered, and my lagging pace outstripped by younger runners in the race, of which the goal is not alone the honor of him who wins the race, but above all the common good. May they act on the motto of the first great inmate of 49 Great Ormond Street, *Non sibi, sed toti.*"

The movement which made it possible to found the Hospital for Sick Children in Great Ormond Street did not by any means expend itself in that effort. Owing not a little to the influence, direct or indirect, of Charles Dickens, public sympathy was aroused, and numerous hospitals sprang up in various parts of London; thus hospitals for children were founded in Pimlico, and in Chelsea in 1866, in Hackney in 1867, in Shadwell in 1868, in Southwark in 1869, and in Paddington as recently as 1883.

Edinburgh can boast that the first step towards a study of diseases in children was taken there somewhere about the year 1838, by Dr. William Campbell, lecturer in midwifery and diseases of women, in the extra-mural school, who gave a separate course of lectures on that subject.

In 1856, Dr. Charles Wilson urged the "expediency of founding a hospital for the diseases of children in Edinburgh" in a series of articles in the *Edinburgh Medical Journal.* Nothing practical followed. But again, in February, 1859, another series of letters appeared in the *Scotsman* above the signature "Sigma, M.D." These are now known to have been written by Dr. John Smith, who was not only a pioneer in this department of medicine, but also in that of dental surgery. At that time, in the eight largest towns of Scotland, the mortality among children under five years of age was 46 per cent. The public press now espoused the cause of the children, and the result was, that on May 5, 1859, at a public meeting, it was resolved, on the motion of Dean Ramsay, that a hospital for the relief of sick children be forthwith established in Edinburgh. n February 15, 1860, a small hospital of twenty-four beds was opened. It was extended from time to time until it had seventy-three beds. With a view to the extension of the Royal Infirmary the managers of that institution bought the grounds of Meadowside House, and the directors of the Children's Hospital in turn bought the Trades' Maiden Hospital and grounds at Rillbank Terrace. The old building was pulled down, and an excellent hospital of 120 beds built on the site. This was opened by Princess Beatrice on October 31, 1895.

The multiplication of hospitals is not an unmixed advantage, but these facts are mentioned as an indication of the increased interest exhibited, during the present reign, in the study and the treatment of disease in childhood. The labors of many physicians and surgeons have gradually accumulated a body of knowledge which has been fully placed at the disposal of the profession in their writings, and through the instruction which has been given in many of these hospitals to students and junior practitioners. It has been said, with what truth we shall not pretend to say, that "pediatrics is the specialty of the general practitioner." Certain it is that the treatment of the diseases of children constitutes no small part of general practice, and a part the importance of which has been steadily growing in the eyes of the public.

Comby: Variola in Children. (*Rev. Internat. de Méd. et de Chir.* 1897. Vol. viii., No. 12.)

The author considers variola as of the type of eruptive fevers. Infection of the fœtus may occur, especially during the latter months of pregnancy, with or without the occurrence of the disease in the mother. Such congenital cases are very grave, and rarely recover.

After birth the contagion may enter through the respiratory or digestive tract, or through the skin. Natural immunity is so rare that it need scarcely be considered, while one attack or one vaccination does not give absolute immunity. Clinically, four stages exist: (*a*) Incubation, lasting ten to twelve hours; (*b*) invasion, very short in severe cases, three to four days in benign cases; (*c*) eruption, discreet or confluent on skin and mucous membranes, may be prolonged by suppuration to twelve or fourteen days; (*d*) desiccation, may last a month. Among the complications to be feared are erysipelas, gangrene, otitis, pleurisy and pneumonia, pericarditis, parotitis, and orchitis. The disease is especially grave in young subjects, and almost invariably fatal in newly-born or nursing infants not yet vaccinated.

The treatment must include hygienic surroundings, milk diet, antiseptic baths and washes for mouth, eyes and pharynx, with purgatives, diuretics, and syrup of codeine or chloral for the pain and insomnia. Isolation must be maintained for forty days.

An infant twenty-one days old was treated with Béclère's immunizing serum, receiving a quantity equal to one-twentieth of its body weight and fully recovered.

Szego: The Infectious Element in Acute Gastro-Enteritis. (*Jahrbuch für Kinderheilkunde.* B. xliv., H. iii., 4.)

In the month of March, 1896, the author observed a severe epidemic of gastro-intestinal disturbance among the inmates of a foundling asylum. On the 29th of the month, a child with severe diarrhœa was admitted. The patient recovered in two weeks. Nine days after the admission of this infant, another infant who was nursed by its mother became ill with gastro-intestinal disease and died in eight days. During the week following, seven other children were taken ill with the same disorder, of which number three died.

In the fatal cases, the course of the disease was violent. The microscopic examination of the stools in these cases showed the presence of the bacterum coli and sarcina. The bacillus subtilus and the bacillus pyocyaneus were found in two cases. In one of the latter, the staphylococcus albus was also present. Bacteriological examination of the blood in two of the cases revealed the bact. coli in pure culture, which upon inoculation of guinea pigs proved to be extremely virulent.

Levi: Infectious Purpura Following Chronic Broncho-Pneumonia. (*Rev. in Rev. Intersat. de Médecine et de Chirurgie.*)

The case was that of a boy of eighteen months who developed a purpuric eruption on the abdomen, trunk and thighs, on the eighth day of a broncho-pneumonia. Death occurred on the twenty-seventh day. At the autopsy the lungs presented the appearance of a dense broncho-pneumonia, with dilated bronchi and much pus. Pneumococci and streptococci were found in cultures from the heart's blood, pericardiac fluid, cerebro-spinal fluid and pus from the lung; also in sections of the lung and skin at the seat of the purpuric eruption.

It was a cachectic purpura, the dilated bronchi being the source of infection, which then affected the skin.

Frey, Lou: Case of Tubercular Meningitis With Recovery. (*Archives für Kinderheilkunde*, B. xx., H. v., 4.)

The author proves that the case was one of tubercular meningitis, in that the cerebro-spinal fluid obtained through lumbar puncture contained tubercle bacilli. The case recovered and contradicts the dogma that tubercular meningitis is always fatal.

The importance of examining the cerebro-spinal fluid in every case of meningitis is dwelt upon. He does not consider lumbar puncture of any therapeutic value.

Sarra: A Case of Congenital Elephantiasis. (*Jahrbuch für Kinderheilkunde.* B. xlv., H. ii.. 3.)

The patient was a boy eighteen months of age. Family history was negative; six brothers were healthy. The birth was normal; at this time the elephantiasis was marked. The right foot was much larger than the left, the great toe being enormously enlarged. At the eighteenth month, the child was small and pale but showed no evidence of rhachitis. The circumference of the right thigh was twice that of the left, the right toe being several times larger than the left. The sensations and reflexes were normal. The child could walk, but as might be expected, dragged the right foot. Treatment with massage and compression was of no value.

Miles, Robert C.: Diseases of the Nose, Throat, and Ears in Children. (*New York Polyclinic.* 1897. Vol. x., No. 1.)

It is in childhood that many cases of impaired hearing originate, chiefly due to nasal stenosis, suppurative rhinitis, and hypertrophy of the lymphoid tissue of the rhino-pharynx and oropharynx.

The nasal stenosis can be relieved by straightening the septum, removing thickenings and outgrowths from it, shrinking swollen turbinals with acids; and much relief can be afforded in suppurative rhinitis by securing free drainage and by the application of antiseptic solutions.

Nearly all the specialists agree that diseased or hypertrophied state of the adenoid tissue of the vault of the pharynx is an important pathological condition of childhood. The objective and subjective symptoms due to disease of this tissue should be carefully noted by the family practitioner. The principal objective symptoms are the open mouth, especially during sleep, and the size of the hypertrophied mass, best ascertained by passing a trained finger behind the soft palate. In many children the size can be determined by inspection through the nose, after cocainization, and the rhinoscopic mirror.

The chief subjective symptoms are mouth breathing, snoring, disturbed sleep, impaired hearing, a peculiar dull voice, cough, spasm of the larynx, asthma, bronchitis. Many instruments and methods of operating have been advocated. Whether general or local anæsthesia should be employed is a question frequently difficult to decide in each individual case. It has been the writer's habit, in those cases where the growth is rounded and is rather centrally situated, to thoroughly cocainize the parts with a 20 per cent. solution, and at times with crystals. This is usually accomplished by passing curved cotton applicators, saturated with the solution, up behind the soft palate, and letting them remain there for a minute or two, and also by passing cocaine on very small cotton applicators, through the nose into adenoid tissue. Then a large sheet is wrapped several times around the child from neck to feet, mummy fashion, and securely pinned from top to bottom; the child is held in the lap of some one, while the assistant, who stands behind, holds the head firmly and in proper position. A Gottstein curette, of suitable size, well sharpened, is pressed up behind the soft palate until it strikes the septum, then it is forced firmly upward against the basilar process; a quick upward, backward and downward movement of the instrument usually brings away a large mass intact. This movement should be repeated two or three times in rapid succession, slightly inclining the curette to the sides respectively. Sometimes a pair of post-nasal forceps with large fenestra are used. After the first flow of blood is over, the index finger, which has been rendered aseptic, is passed up, and whatever small masses have been left around the choanæ and Rosenmüller's fossæ, are broken up. The whole operation is usually done in about thirty seconds.

When the growth is very large and attached to an extensive surface, sometimes extending into the posterior nares and down to the oro-pharynx, the author prefers to operate under a general anæsthetic; chloroform is the most agreeable to the patient and to the surgeon, but ether, with its slowness and horror to the little patient, is the safest. Bromide of ethyl, nitrous oxide gas intermixed with about 10 per cent. of oxygen are excellent agents in the class of cases when the operation can be finished in thirty to fifty seconds. When operating in cases of general anæthesia, he first uses the large fenestrated forceps, adjusting them carefully around the growth before making the traction. After the large section is removed the patient's head is placed over the edge of the table with the face downward, and the blood is allowed to run out of the nose and mouth. The smaller forceps and curette are used, carefully guarded by the finger, to remove the remaining marginal and fragmentary masses. The results of the operation are as gratifying as any in the department of surgery. Nearly all of the unfavorable symptoms disappear at once, and the hearing improves rapidly and markedly.

It has been the experience of the author that one of the simple forms of Mackenzie's tonsillotome is the best for removing all protruding faucial tonsils, and the punch and Rongeur forceps have been found extremely serviceable for the tonsils which are hypertrophied in their bases.

Hypertrophy of the small glands in the post pharyngeal wall, usually described as granular or follicular pharyngitis, is best relieved by some form of curette. The one devised by Mayer is the best for general use.

The general practitioner should be more alert in regard to ascertaining the exact state of the child's ear, especially in those cases where the symptoms are vague or indefinite.

Hunt, W. A.: The Relation of the State to the Epileptic. (*Northwestern Lancet.* 1897. Vol. xvii., No. 1.)

During the last few years a class of defectives has forced itself, by reason of numbers, dependency, and casual relation to the other defective classes, upon the attention of society, and, as a protection to itself as well as a duty it owes to this class of unfortunates and their afflicted families, the State has come to the point of adopting the epileptic as a public charge, extending to him a parental guardianship, with every facility for a return towards the normal condition, and providing a kind ministry to the wants of the hopeless epileptic wreck. This charitable, and at the same time protected measure, is now well inaugurated. Ohio was the first State to equip a hospital home exclusively for epileptics under State control. This hospital was opened in 1893. New York followed in 1895 with the Craig Colony for epileptics, on a tract of 1,800 acres. Massachusetts and New Jersey have since, by legislative act, authorized the establishment and maintenance of similar institutions. Minnesota, with California, Illinois, Indiana, Michigan, Maryland and Pennsylvania, has, for several years, recognized the duty and necessity of providing for this class, by placing them (as far as possible by themselves) in institutions for the feeble-minded and insane. The adoption of such steps by these eight or ten States during the past few years indicates a necessity for such action, and has undoubtedly been brought about in large part by the wonderful advance made in recent years in the study of social problems and the facts gathered, authoritatively, by State boards of charities and correction, regarding all classes of defectives, delinquents, and dependents.

The usual estimate of the proportion of epileptics to the general population is placed conservatively at two per thousand; this would mean about 140,000 in the United States.

The history of the care of the epileptics by State or philanthropic organizations is a meagre one, dating from about 1848, in an effort by Pastor John Bost, of La Force, France, to alleviate the sufferings of all classes of unfortunates, from incurable diseases, feeble-mindedness, epilepsy, blindness, etc. This effort eventually proved so satisfactory and such a needed relief that twenty years later, what has now become a most successful and model institution was started at Bielefeld, Westphalia, on a plan which has been copied and adopted more or less by nearly all subsequent homes for epileptics. This colony has developed into a large and prosperous community, providing for over 1,200 epileptics and utilizing over 1,300 acres of land. It provides a church, schools and hospitals, and the inmates are engaged in the raising of all kinds of stock, the cultivation of all kinds of crops from the farms, gardens and orchards, and a large range of other useful occupations is offered, connected with and adjunct to the main branches of labor. Such an industrial and educational system, with scientific medical care and attendance, is considered to be the ideal environment for epileptics. Instead of one or more large and expensive buildings to accommodate a large number, smaller cottages, accommodating from forty to sixty inmates, are preferred as best adapted to classification of inmates as well as to secure more natural and home-like surroundings. As the demand increases for larger accommodations, it can be met by erecting similar cottages. This separation of different classes of the afflicted into groups also allows of more systematic study and treatment of the various phases of the disease.

Wherever such provision as above has been made for the epileptic, the results have been most satisfactory, and the colony plan is the one now generally adopted. In our own country, of the States named in the former part of this paper as providing any care whatever for the epileptic, New York, in its Craig Colony, has inaugurated the most extensive system, based on the Bielefeld Colony plan. California has recently bought a large tract of land with the same end in view for both the feeble-minded and epileptic. Minnesota has just added a four-hundred acre farm to the ground used by the school for feeble-minded and epileptics, and this would offer a suitable means for the adoption by our own State of a similar plan.

As to the duty of the State, and the advisability of the pursuance of such a course, there ought to be but one opinion on the part of the medical profession. Such institutions are laboratories for the study of *large groups* of cases as well as *single* cases, and valuable information is often obtained from such a broader view of a disease than by considering singly an indivdual case. Carefully kept records, with deduced statistical data from institutions caring for large numbers, will often bring to light valuable facts. The gathering of such statistics and facts may be of great value in increasing preventive measures and lessening the number of afflicted, and when added to this are the more systematic and enlarged opportunities for scientific investigation and study, there is possibility of much good accruing both to the state and to this class of unfortunates. The grouping of large numbers, the separation into classes of similars, and the fullest research into the pathological conditions, may yet add greatly to our knowledge of this particular disease. The very fact of the inadequacy of our knowledge of the pathology and treatment of epilepsy is a strong argument in favor of "turning upon the subject the concentrated light of scientific investigation and study." The State should not only allow the fullest pathological research in all its hospital homes, but should *require* it as a possible source of future return for the public outlay, and should equip each institution with capable pathologists and every facility for study into the causation and treatment of all such maladies.

A consideration of the public good does not wholly or largely mean the financial phase, nor one only of philanthropy to the aided, but looks to the removal of agencies destructive to the health, lives, property and morals of society, and, in this broader view, it may be said of the epileptic as has been said of the feeble-minded, that "however much it may cost to take care of these unfortunate people, it is going to cost in the end far more to neglect them." Such a removal and segregation of the epileptic class into separate hospital homes can only be a beneficial protective measure in every way. They are eliminated as a degrading and demoralizing element of society, while being improved somewhat themselves mentally, morally and physically. Society is purified by the removal of such an element, and the expense can be lessened to some good degree by their profitable employment. They are also prevented from propagating an inferior progeny. From what has preceded, the author concludes that the State would be justified in assuming control of the epileptic with full guardianship of the dependent epileptic.

The paper closes with the fitting words of Superintendent Rogers, in a paper on "The Future of the Feeble-Minded," read at the third Minnesota State Conference of Charities and Correction, and which will apply with equal force to the dependent epileptic: "Let the State, then, gather under her protecting wings any and all whose mental heritage leaves them helpless, hopeless or stamped with decided inferiority. Kindly minister to their wants, lend gentle comfort to their misfortune, generously fill their lives with plenty and their hearts with joy, but firmly deny the right to increase their kind by a practical 'Thus far shalt thou go, but no farther.'"

Herter, C. A.: Acute Alcoholic Intoxication in a Young Child Followed by Convulsions and Paralysis of Cerebral Origin, and by Multiple Neuritis. (*The Quarterly Journal of Inebriety.* 1897. Vol. xix., No. 2).

The patient was a boy aged three and a half years, who was admitted in December, 1895, to Dr. Holt's service in the Babies' Hospital. Briefly stated, the history was as follows: The child, after a large drink of whiskey, went into stupor varying in depth and lasting more than two months. He had a large number of convulsions, partly general and partly limited to the left side, and developed right-sided paralysis, which was especially marked in the arm. He had extreme contractures, especially of the left side, and loss of faradic irritability with wasting, and during the first two months had pupillary symptoms, strabismus, and repeated vomiting. During six weeks there were the signs of complete consolidation of the right lower lobe. From December 13, 1895, until February 7, 1896, there was an irregular fever, which was not usually very high.

When the patient first came under the observation of the author it was thought doubtful whether the draught of whiskey could be held responsible for the symptoms. The paralysis, the stupor, the repeated convulsions, and the fever, persisting as they did, made it likely that the case was one of meningitis, implicating especially the convexity. When strabismus, vomiting, and irregular breathing became prominent, it became difficult to resist a strong suspicion that the condition was one of tubercular meningitis. With the development of marked contractures in the extremities, with considerable muscular atrophy, loss of knee-jerk, and tenderness of the muscles to pressure, it became highly probable that the child had developed a multiple neuritis of alcoholic origin. The alcoholic origin of the symptoms was made very probable, if not certain, by reliable information (not at first obtainable) as to the quantity of whiskey taken.

When the symptoms of multiple neuritis became fully developed and their dependence upon alcohol became clear, it was evident that the cerebral symptoms which marked the early stage of the illness were likewise the consequence of intoxication by alcohol.

As to the nature of the anatomical changes, which we must assume to underlie the persistent cerebral symptoms, we have no information. A somewhat extended search through the modern literature of acute alcoholic poisoning has failed to discover a similar case in which the histological findings throw light upon the conditions present in our case.

Empyema of the Antrum in an Infant.—Mr. D'Arcy Power showed a specimen of empyema of the antrum in a child eight weeks old. The child was admitted into the Victoria Hospital on July 29th, 1897, in a very wasted condition, with an abscess discharging at the lower part of the right eyelid. Examination with a probe showed that there was an area of dead bone on the upper surface of the superior maxilla. Pus was also exuding from the alveolar border, but no definite opening could be detected. There was a history that both sides of the face had been bruised at birth during delivery by forceps; but it was not till the child was about a month old that the abscess was noticed. It had been discharging ever since. On admission to the hospital the abscess was freely opened and granulations were scraped away, but the child died thirteen days after, and at the necropsy a small abscess was found in the right lung. The specimen showed that the bone had undergone very extensive necrosis. Its malar surface was represented by two sequestra, which, being removed, exposed the deciduous molars, which were themselves eroded. There was also destruction of the orbital plate except the dense ring at the lower margin of the orbit, and the facial surface was necrosed up to the junction of the pre-maxillary bone.—*The Lancet.*

ARCHIVES OF PEDIATRICS.

VOL. XV.] APRIL, 1898. [No. 4.

Original Communications.

THE MANAGEMENT OF HERNIA IN INFANCY AND CHILDHOOD.*

BY WILLIAM B. COLEY, M.D.,

Attending Surgeon to the New York Cancer and Post-Graduate
Hospitals ; Assistant Surgeon to Hospital for Ruptured
and Crippled, New York.

It is not my intention to give you a paper, but rather to state as simply and briefly as possible some of the more important points relating to the management of hernia in infancy and childhood.

This is a subject of very great importance and one that has thus far received far too little attention from surgical writers and teachers.

I wish to speak first of mechanical treatment. Notwithstanding the brilliant advances made in the operative treatment of hernia in the past decade, conservative surgeons will admit that mechanical treatment still occupies the more important place.

Diagnosis.—First a few words in regards to diagnosis.

In most cases diagnosis is easy, though not infrequently cases are sent to the Hospital for Ruptured and Crippled for a truss, in which no hernia is present. The condition that is most frequently mistaken for hernia in infants and children is hydrocele of the cord. I have seen a considerable number of cases in which the physician had practiced prolonged taxis and in several instances chloroform had been administered as an aid to the taxis, in which no hernia was present, but a simple hydrocele of the cord.

The diagnosis is not often difficult if we bear in mind the following points: Hydrocele of the cord almost always gives the following characteristic clinical picture—a small globular or slightly oblong swelling, smooth and symmetrical in outline, tense and cystic; usually situated just outside of the external ring, but often can be pushed into the canal as far as the internal ring. This might, as far as the physical signs go, be mistaken for a strangulated hernia, but for no other. The history of the swelling will in all cases make it possible to differentiate it from strangulated hernia. In hydrocele of the cord the swelling will usually have been of considerable duration, and, what is more important, there will be a history of the swelling never having been reducible. Irreducible hernia, other than strangulated, is extremely rare in children, and when it does occur it is either omental or caecal and the tumor in such cases would not correspond to the description given. Adding to this the fact that the child is perfectly well and apparently free from pain, we ought to be able to make rule out a strangulated hernia which, almost invariably, is attended by characteristic symptoms.

---

* Read before the Section on Pediatrics, New York Academy of Medicine, January 13, 1898.

The first question that the general practitioner has to answer is, When shall treatment be begun or when shall we apply a truss? Some writers, though I am glad to say they are becoming fewer in number, advise delaying treatment until the child is a year old or more. The reason for this advice being, I presume, the supposed difficulty of keeping a truss properly adjusted in infants, and the belief that no harm will result from the delay. The difficulties referred to are found in actual practice to be by no means great, and on the other hand the dangers (that may be the result) of allowing the rupture to go without support are decidedly real. I have seen two cases of strangulated hernia in infants due to the truss having been left off on the advice of the family physician. Mr. Macready, who has had perhaps the largest personal experience in treating hernia, states that a truss should be applied as soon as the rupture is discovered and I firmly believe this to be the best mode of procedure.

What kind of a truss shall we use in infants?

This is the second question that naturally arises.

I believe a well-tempered steel spring as light as consistent with the support required, covered with rubber tubing, with a pad of polished wood, or of wood covered with chamois skin, makes the most satisfactory truss for infants and children. As to the type of truss, there is little to choose between the Hood pattern as illustrated by the Pomeroy and De Garmo truss, and the cross body or Knight truss which we have long used at the Hospital for Ruptured and Crippled. Personally I prefer the latter and in cases difficult to control, I have found it the more satisfactory. The truss should be applied much more loosely than in adults. It should be worn day and night. I will show you some specimens of trusses illustrating the different forms.

In applying the truss the pad should rest above the pubic bone and over the internal ring. This does not apply to femoral hernia, and since this variety is so very rare in children under the age of puberty, it is hardly necessary to mention it.

How long should a truss be worn?

This is not an easy question to answer. Macready states that in cases where a cure has resulted it is found that the truss has been worn on an average of five or six years. He states: "I cannot take it upon myself to leave off a truss even when all visible trace of the hernia has disappeared, because though many are free perhaps for the remainder of their lives, many others are free only for a certain period which though it may reach the average of twenty-two years, is often very much less."

Inasmuch as the well-nigh perfect results of operative treatment of hernia in children have been attained since the publication of Macready's admirable treatise in 1893, I think we should modify somewhat our rules in regard to the time of wearing trusses. Our rule at the Hospital for Ruptured and Crippled is as follows:

A truss is applied as soon as the rupture is seen. It is kept on day and night and only removed for cleansing of skin when the child is in a recumbent position. The child is examined once a month or at shorter intervals the first few months. The truss is not left off until at least two years have elapsed since the rupture was last down. This by no means insures a permanent cure in all cases, as occasionally the rupture comes down after the truss is removed, but in these cases we believe a permanent cure will be unlikely to take place, no matter how long the truss be worn and it is better to operate at once rather than let the child continue to wear a truss for years longer or perhaps for life.

Results of Mechanical Treatment.—What shall we tell parents as to the probabilities of a cure for wearing a truss? This is one of the first questions asked us, but unfortunately one that we cannot answer definitely. We can say in a general way that the younger the patient the more probable the cure. Of 240 cases collected by Macready that had remained cured on an average of twenty-two years, 58 per cent. were under one year of age when the hernia developed, and in but 19 per cent. had the hernia appeared after the age of fifteen years. We frequently hear it stated that all infants and children with hernia are cured by trusses. If this were true there would certainly be no need of operating upon this class of cases.

Five years ago when I published my first series of fifty cases of hernia in children between the ages of four and fourteen years treated by operation, I was told by a leading surgeon that all cases of hernia in children could be cured by trusses, and in proof of his statement he mentioned that he had never seen a case that was not cured. On consulting various authorities on hernia, I found very little definite information was to be had upon this point, so during the past year with the aid of Dr. Carl Pfister and Dr. A. H. Cilley, I made an analysis of 26,388 cases treated at the Hospital for Ruptured and Crippled since I began my work there in October, 1890, to determine how many adult cases of hernia, if any, gave a history of hernia in infancy and childhood. Of 15,197 cases over twenty-one years, I found 705 cases in which the hernia had been observed prior to the age of fourteen years. Making a proper allowance for the number of children that die before reaching maturity, we can reach an approximate estimate of 25 to 30 per cent. as representing the number of children that are not cured by trusses. The error, if any there be, will be on the side of an under—rather than over-estimate, because many adult cases undoubtedly fail to remember a history of hernia in infancy.

These figures prove beyond question the need of surgical interference if a cure be the ideal we are striving for in the treatment of hernia in children.

In the little time remaining I wish to discuss the *indications for operation.* These I have already set forth in a recent paper:

"I believe it to be a good rule never to advise operation in children until a truss has been satisfactorily tried for a reasonable time, *e. g.*, one or two years, without benefit. There are, however, important exceptions to the rule: (1) In femoral hernia operation may at once be advised, for the reason that the chances of cure by means of a truss are too slight to be considered. (2) Irreducible or adherent omentum (rare in children and reducible hydrocele may furnish sufficient reason for early operative interference. (3) There are, furthermore, a number of cases, especially in dispensary practice, in which the rupture cannot be satisfactorily retained on account of insufficient care on the part of the parents, and such cases may with profit be subjected to immediate operation."

Methods.—Bassini's method, I believe, gives by far the best results, though it is often stated: all operations are successful in children, conveying the idea that operations in children are easier than in adults. This is hardly true, as the nineteen cases operated upon at the Hospital for Ruptured and Crippled prior to 1890, by older methods of Czerny and Socin, showed about 50 per cent. of relapses. The operation in children to one who has had little experience is a more difficult one than in adults, because the tissues are more delicate and need to be treated with greater care. The dissection of the sac is more difficult and the danger of injuring the cord greater. This much, however, may be fairly claimed: The immediate results of wound healing are better than in adults, and the final results as far as observed are likewise better.

Dangers.—These are chiefly due to the anæsthetics, though peritonitis following wound infection has caused death in a number of the fatal cases. The collected statistics of Broca, Felitzet, De Garmo and my own, show a mortality of less than one-fourth of one per cent. in upwards of 900 cases. My only fatal case in upwards of 300 operations for hernia in children under fourteen years of age was the seventy-first case, and that was due to pneumonia, Since then I have operated upon 230 consecutive cases in children without a death. Including adults I have operated upon 460 cases with one death, or 351 consecutive cases without mortality.

Strangulated Hernia in Infants.

My first case, operated upon in the Fall of 1891, was an infant eight weeks of age, with strangulation of nearly two days duration. The patient was almost moribund when brought to me. With the assistance of Dr. J. B. Walker I performed heriotomy. The operation was done after midnight, with poor light and under unfavorable conditions. Cæcum and appendix were found in the sac. The constriction was due to the sharp edge of the aponeurosis.

Owing to the desperate condition of the child no attempt at radical cure was made. The patient rallied slightly after operation, but died two days later.

Since that time I have operated upon six other infants under the age of two years with no deaths; five of these cases were under the age of one year.

Case II.—J. F., 8 months old, male, with strangulation of twenty-four hours' duration. The hernia had existed but one week prior to strangulation. The patient was brought to the Dispensary at the Hospital for Ruptured and Crippled, on July 9, 1892. Moderate taxis failed to reduce the hernia. Taxis was again tried under chloroform, but without success, and operation was immediately performed. The constriction in this case also, was apparently due to the facia of the external oblique. The wound was closed with kangaroo tendon without transplanting the cord. Perfect primary union followed. The patient was well, without recurrence, November 14, 1896, four and one-half years later.

Case III.—*Strangulated cæcal and appendical hernia.*

A. D., aged twelve months, male. Operation February, 1893. The patient was brought to the Hospital for Ruptured and Crippled with a strangulated right inguinal hernia of twenty-six hours' duration. The infant was almost in collapse when first seen. The constriction was found to be very tight, but the cæcum and appendix were apparently viable and were returned to the abdominal cavity. On cutting the aponeurosis and external oblique, the hernia could be reduced, proving that this was the cause of the constriction and not the neck of the sac. Bassini's operation—but using kangaroo tendon for the buried sutures—was performed. The wound healed by primary union and the patient, when last seen, one and one-half years later, was well, without recurrence.

Case IV.—*Strangulated cæcal and appendical hernia.*

H. L., male, seven and one-half months old; weight eight pounds. This patient had been treated for some time at the Hospital for Ruptured and Crippled by means of a truss. The latter was left off by the advice of the family physician, and on the 31st of May, 1893, the rupture came down and could not be reduced. On June 1st, twenty-four hours later, the patient was brought to the hospital in a very bad condition. Taxis under chloroform failed to reduce the hernia and immediate operation was performed. The appendix was so nearly gangrenous that it was thought best to remove it. The wound was closed by Bassini's method, and healed primarily. The day following the operation the temperature ranged between 106° and 107° and for twenty-four hours the patient was kept almost continuously in a bath of 95° temperature. Recovery was perfect, but the patient died a few weeks after leaving the hospital of old trouble —marasmus.

CASE V.—*Strangulated Cæcal Hernia.*

E. K., male, five months old; the hernia had existed since birth. This patient had been advised by the family physician not to wear a truss. The infant was brought to the Hospital for Ruptured and Crippled on October 2, 1894, with a right, inguinal hernia, the size of a goose egg, which had been strangulated for sixty hours. Temperature was 100°; pulse extremely feeble; the child was listless. Taxis under chloroform having failed to reduce the hernia, operation was at once performed. The aponeurosis was found to be the cause of the constriction. This was freely opened as in the Bassini operation. The bowel was badly congested but in sufficiently good condition to be returned. Wound closed by Bassini's method and healed by perfect primary union. The patient was discharged from the hospital well. Later, he died of pneumonia.

CASE VI.—J. M., male, aged twenty-three months. Right inguinal hernia of one day's duration, caused by a fall. The patient was brought to the Hospital for Ruptured and Crippled on June 22, 1897, when strangulation had existed but five hours. Taxis under chloroform failed to reduce the hernia, and operation was performed immediately. A loop of small intestine about four inches long was found in the sac; constriction was due to the external ring. Bassini's operation was performed with the usual technique. Wound healed by primary union.

CASE VII.—H. B., male, aged twenty-three months, with a right inguinal hernia which had existed since birth. The child had been treated by a truss, but the rupture occasionally would come down in spite of the truss. The patient was brought to the hospital on November 12, 1897, with a strangulation of twelve hours' duration. This could not be reduced by taxis under chloroform, and operation was at once performed. Four inches of small intestine was found in the distended sac; there was considerable exudate of serum with numerous flakes of fibrim. Bacteriological examination of the fluid showed it to be free from bacteria. On opening the aponeurosis, the hernia was easily reduced. The wound was closed by Bassini's method.

In addition to these cases I have seen three other cases of strangulation in infants; one aged eight months was brought to the Hospital for Ruptured and Crippled in extremis, and immediate operation was strongly urged; but the parents would not consent; the child was taken away. The after-history I am unable to state, but death undoubtedly occurred within twenty-four hours.

Another case, one year old, was brought to the hospital in 1895. Prolonged taxis had been tried prior to admission. Very moderate taxis was made by the house surgeon with the result that the hernia was reduced. The condition of the infant, which was bad at the time of admission, rapidly grew worse and death occurred within twenty-four hours. Unfortunately, no autopsy was permitted.

Of my seven personal cases, six recovered, giving a mortality of 14 per cent. The one case that died was, as I have stated, almost moribund at the time of the operation.

With regard to the age, five were under one year old, one eight weeks, one eight months, one seven and one-half months, one five months and one twelve months of age; two were twenty-three months old.

As to the contents of the sac, it is interesting to note the very large proportion of cæcal herniæ; four out of seven were cæcal and in three the appendix was found in the sac in addition to the cæcum. Only in one case was it necessary to remove the appendix.

Tariel of Paris, who has made the most complete collection of statistics concerning strangulated hernia in infants, states that in 128 cases the cœcum and the appendix were found only in eight cases.

The duration of the strangulation is of great importance. In the first case this was thirty-six hours; in the second, twenty-four hours; in the third, twenty-six hours; in the fourth, twenty-four hours; in the fifth, forty-eight hours; in the sixth, five hours, and in the seventh, twelve hours.

In only one personal case was a bacteriological examination made of the fluid in the hernial sac; in all cases there was a certain amount of exudate.

A wide difference of opinion seems to exist as to the cause of the constriction. Marsh (St. Bartholomew Hospital Reports London, 1874), who collected thirty-two cases of strangulated hernia in infants, states that in twenty cases constriction was due to the neck of the sac; in seven cases to the external ring, and in three to the internal ring; in one case to the conjoint tendon, and in one to both rings.

Tariel states that out of eighty-one cases which he collected, the neck of the sac was regarded as the cause of constriction in fifty-eight cases. He believes that this theory of the strangulation by the neck of the sac, which is held by Scarpa, Dupuytren, Malgaigne, and others, remains true for infants in the majority of cases.

Personally I do not share this view. The majority of the cases upon which Tariel's conclusions are based, were operated upon prior to the introduction of modern methods in which the aponeurosis of the external oblique is freely opened: and unless this be done it is impossible to state definitely whether the constriction is due to the neck of the sac or to the external ring. In every one of my seven cases the aponeurosis was widely opened and this alone was sufficient to render reduction of the hernia easy, which would have been impossible had the constriction been due to the neck of the sac.

As regards radical cure, in all of my cases with exception of the first, I supplemented the herniotomy with an attempt at radical cure. To do this, added but little to the time consumed by the operation and it invariably prevented recurrence; one case was well four and one-half years after operation; another, one and one-half years, and another three years; one is a recent case; two died of other diseases after having left the hospital cured.

From a study of these cases as well as from the collective statistics of strangulation in infants, I should draw the following conclusions:

I.—Strangulation in infants is more frequent than is generally appreciated.

II.—It not infrequently arises from the bad advice of the family physician to postpone wearing a truss until the child is a year old. Two of my cases were due to this cause.

The diagnosis is not usually difficult, hydrocele of the cord being the chief condition likely to cause confusion. The history of the case and the general condition of the patient will, as a rule, render diagnosis easy.

As a treatment, gentle taxis for one or two minutes should be tried. If this fails, application of hot cloths, from fifteen to twenty minutes, followed by taxis under chloroform, after all preparations for operation have been made. If this also is unsuccessful, immediate operation. An attempt at radical cure can, in the great majority of cases, be made with safety.

Diphtheritic Affections of the Heart.—Mollard and Regaud (*Ann. de l' Institute Pasteur*) record the effects upon the heart of fatal doses of diphtheria toxin injected into dogs, rabbits, and guinea-pigs. True myocarditis was never observed, and cardiac symptoms were, as a rule, obscured by paralysis and other more marked affections, nor were the macroscopic lesions observed at the necropsies ever unassociated with disease of other organs. The naked-eye appearance of the myocardium did not suggest any microscopic changes such as were actually found. Further examination showed that in every case (eighteen in all) of experimental diphtheritic intoxication the myocardium was affected. The affection invariably started in, and was sometimes confined, to the muscular tissue, and it commenced in the contractile substance as an impairment of the normal striation, and later attacked the nucleus and protoplasm, leading eventually in some cases to complete destruction of the muscular substance. Lesions of the myocardial vessels were very frequent, the muscular coat of the arterioles being particularly affected; the changes in the smooth muscle were strictly comparable to the contemporary alterations in the cardiac muscular fibres. In acute and subacute cases (surviving at longest seventeen days) no hyperplasia of the connective tissue elements was observed, the sole important change in the connective tissue being leucocytosis. This diffuse interstitial leucocytosis appears to have been no more than a phase in the general leucocytosis which is constant in diphtheria. The nodular interstitial leucocytosis is in relation to the foci of muscular disintegration. The primary muscular lesion leads to leucocytosis. The leucocytes absorb the muscular *débris*, particularly the sarcoplasmic exudations. The foci and disintegration become the foci of phagocytosis. The whole process is similar, both in symptoms and pathological appearances, to that found in human diphtheria.—*British Medical Journal.*

STRANGULATED HERNIA IN INFANTS UNDER ONE YEAR OF AGE, WITH THE REPORT OF A SECOND CASE SUCCESSFULLY TREATED BY OPERATION.*

BY CHARLES N. DOWD, M.D.,

Attending Surgeon to the New York Cancer Hospital; Assistant Surgeon to St. Mary's Hospital for Children.

In last year's May number of The Archives of Pediatrics it was my pleasure to report a successful operation for strangulated hernia in an infant of four months, and to review the literature of operation for strangulated hernia in infants less than a year old. It was indicated that infants with strangulated hernia are suitable subjects for operation after gentle and careful efforts at taxis had failed, and that there should be no delay.

Since that paper was written several new cases have been reported, records of some others have been found, and I have operated upon a second case.

Report of Author's Case.—This was a poorly nourished male child six months old who was sent into St. Mary's Hospital for Children, by Dr. Robert Watts, Jr., on November 11, 1897, with strangulated right oblique congenital inguinal hernia. Strangulation had existed for twenty-one hours and was brought on by a severe attack of coughing. No hernia had previously been known to exist. The child had vomited once; had been constipated for two days, and had urinated but once in twenty-four hours. He had already been taken to another dispensary and strong efforts at taxis had been made; so strong that the skin over the hernia was much contused. His appearance indicated weakness and suffering, he was pale about the lips and dark about the eyes, the pulse was rapid but of good strength. The hernia was nearly as large as a hen's egg and was very tense.

The child was put in a hot bath, his feet were elevated and gentle pressure was made on the sac without avail; he was then prepared for operation. Gentle pressure upon the hernia under ether anæsthesia was unavailing and the operation was proceeded with. The hernia was found to consist of about four inches of the lower end of the ileum which was dark, almost of a chocolate color. The tissues were so tense that no line of demarcation could be distinguished between the border of the external

---

* Read before the Pediatric Section of the New York Academy of Medicine, January 13, 1898.

CASES OF STRANGULATED HERNIA IN INFANTS LESS THAN A YEAR OLD WHICH HAVE BEEN SUBMITTED TO OPERATION; AN ADDITION TO THE 31 CASES COLLECTED BY STERN* SINCE 1874, THE 26 ADDITIONAL ONES COLLECTED BY TARIEL,† THE 10 BY KNOBLOCK,‡ AND THE 15 BY THE AUTHOR.

No.	Operator.	Age of Child.	Variety of Hernia.	Contents.	Duration of Strangulation.	Method of Operation.	Result.	Remarks.
16	Hall. Southern California Practitioner, May, 1897.	5½ mo's.	R. Inguinal. Congenital.	"Bowel" and Omentum.	4½ hours.	Sac ligated. Pillars of ring sutured with chromicized catgut.	R.	Letter December 22d, 1897, "Perfect Result."
17	Sherrill. Archives of Pediatrics, Oct., 1897.	2 mo's and 21 days.	R. Inguinal.	Intestine.	8 hours	Sac incised. Hernia reduced. Pillars of ring sutured with fine catgut.	R.	———
18	W. O. Roberts. Archives of Pediatrics, Oct., 1897.	2 mo's.	———	Caecum.	———	Sac ligated. Opening closed.	R.	———
19	Dugan. Archives of Pediatrics, Oct., 1897.	4 mo's.	Inguinal. Congenital.	Loop of Intestine.	4 hours.	Bassini.	R.	———
20	Booth, C. C. Columb. Med. Jour 1897 XVIII., 299.	8 days.	R. Inguinal. Congenital	Intestine.	24 hours.	Sac sewed with contin. catgut. Ring constricted with extra sutures.	R.	———
21	Cuff. Brit. Med. Jour., 1897, II.	5 mo's.	Right Inguinal. Congenital.	Intestine.	36 hours.	Sac twisted and sewed to internal ring.	R.	———
22	Moynihan. Lancet, 1897, II., 789.	22 days.	R. Inguinal.	10 or 12 inches of small intestine.	24 hours.	Ball's method of radical cure.	R.	———
23	De Garmo. Jour. of Am. Med. Assn., Oct., 1897.	5 mo's.	R. Inguinal. Scrotal.	Large and small intestine	5 hours.	Bassini.	R.	Operation for hernia of left side done at same time.
24	Ferguson. N. Y. Med. Jour., 1896, LXIII., 422.	4 mo's.	Oblique Inguinal.	Caecum and appendix.	5 hours or more.	Sac opened, contents replaced in abdominal cavity.	R.	———

25	BITTNER. Archiv. f. Klin. Chir., Berlin, 1894, xlix., 803.	6 mo's.	———	Intestine.	2 days.	———	R.	———
26	TUTTLE. Med. Times and Register, 1896, XXXII., 415. Jour. Am. Med. Assn., Aug. 19, 1893. Personal letter.	2 mo's and 27 days.	R. Oblique Inguinal.	Gut (discolored and congested)	8-10 hours.	Sac closed with suture. Ring sewed with kangaroo tendon.	R.	———
27	MARCY. Med. Times and Register, 1896, XXXII., 415, and personal letter.	2 mo's.	R. Inguinal. Scrotal. Congenital.	Colon, Caecum, Appendix, Ileum.	2 days.	Marcy.	R.	Report 6 years after operation "cured."
28	JONES. Med. Times and Register, 1896, XXXII., 415, and personal letter.	4 mo's.	R. Inguinal.	Intestines and omentum.	24 hours.	Marcy-Bassini.	R.	Dressing of iodoform-collodion and cotton—no bandage. Recovery complete in two weeks. No discomfort apparent.
29	TIETZE. Zietschi. f. Pract. Aerzte, Frankfurt, 1896. No. 15.	3-6 mo's.	———	———	———	———	D.	Diarrhœa with bloody stools the day after operation.
30	TIETZE. Soc. cit.	3-6 mo's.	———	———	———	———	D.	———
31	TIETZE. Soc. cit.	3-6 mo's.	———	———	———	———	D.	———
32	TIETZE. Soc. cit.	7 weeks.	Inguinal.	Intestine.	24 hours.	Ring closed with silk sutures. Sac not isolated.	R.	———
33	AUTHOR'S CASE.	6 mo's.	R. Oblique Inguinal Congenital.	Lower end of ileum.	21 hours.	Bassini.	R.	———

---

* Stern, Centralblatt fur Chir, 1894.

† Tarlel, De la Hernic Inguinale Etrangtée chez l'Enfant, Paris, 1894.

‡ Knobloch, Inaug. Des Breslau, 1890.

abdominal ring and the intestine. Incision was made through the aponeurosis of the external oblique muscle, and a blunt instrument was passed from above through the external ring which was then divided. The intestine at once regained its pinkish color, and after careful examination it was returned into the abdomen. The operation was completed after the method of Bassini. A dressing of plaster of Paris was applied over the gauze dressing. Healing took place by primary union, and excepting for a slight disturbance in digestion which followed the change from breast milk to modified milk, the convalescence was uneventful.

The child left the hospital December 3d, and has been seen at the dispensary within a few days. He is in good health and the abdominal wall is strong.

In this table of eighteen cases there are records of three deaths. Tietze, who reports them all, considers that they were the result of delay before operation and believes that the children would all have lived if the operations had been done at the proper time.

Adding these eighteen cases to the eighty-two previously collected we have 100 cases of strangulated hernia in children under one year of age, submitted to operation, with twenty deaths. The percentage of fatality corresponds very closely to the 18 9-10 per cent., which Stern found in 733 adults operated upon under similar conditions, and the deaths as indicated in the former paper have been mostly due to delay. Tietze has ascribed the delay in his cases to the failure of the physicians to make early diagnoses; the condition being so rare that it was not looked for. He attaches much importance to the following symptoms. 1. Vomiting, which if persistent and severe in a nursling, should always lead the physician to examine the inguinal region for hernia—the vomiting is sometimes preceded by singultus. 2. Constipation. 3. Anuria which often exists and is of a reflex nature. These symptoms are surely valuable guides if they exist and the recommendation furthermore emphasizes the advantage of examining babies with their clothes off.

It is evident, however, from the histories of many of the cases that delay and prolonged efforts at taxis after the diagnosis had been made have been the cause of disaster. The danger of delay in strangulated hernia is graphically shown by Riedel's* records. Among the 174 patients with strangulated hernia upon whom he has operated, thirty-one had marked changes in the intestine (gangrene, or partial gangrene, or peritonitis, or en-bloc-reposition): twenty-two of these thirty-one died; while only two of the other 143 died, one from erysipelas and one from the inhalation of vomited material.

---

* Riedel. Sammlung Klin. Vortäge, No. 147, p. 453.

There is an old adage that the physician who sees a strangulated hernia should not let the sun go down before relieving it, or if he sees it at night it is to be relieved before the sun rises; but with infants the fear lest they may not survive the operation has often given excuse for delay. But delay is more dangerous with infants than with adults, as they bear operations of moderate severity very well indeed, but do not so successfully endure long strangulation, nor the effect of resection of the intestines or the formation of artificial anus. Additional knowledge on the ability of infants to bear operation for conditions which involve the intestine is obtained by studying the reported cases of intussusception. Dr. C. L. Gibson,* of this city, has collected them most thoroughly and exhaustively. In considering the mortality according to age he bases his study upon 211 cases and finds that it was 65 per cent. in those under a year old; 61 per cent. in those between one and fifteen years old; and 62 per cent. for adults; thus indicating that the collective results of the operation have been practically the same in infancy, in youth, and in adult life. If, however, we separate those cases in whom there has been resection of the intestine or the formation of an artificial anus, we find a marked difference in the mortality among infants, and among older children and adults. There were no recoveries among the twenty infants under one year of age in whom resection of the intestines or formation of artificial anus was done, while there were 10 or 15.9 per cent. of recoveries among the sixty-three patients over one year of age in whom one of these procedures was done.

The result of the laparotomy in newly born babies for congenital hernia into the tissues of the umbilical cord is also of interest. Marjautschik† records twenty-five recoveries from operation among thirty-two such cases. During four years of service in St. Mary's Hospital for Children I have watched with a great interest the ability of children to stand surgical operation. Their recuperative powers seem to be better than those of adults; the day after operation they often seem free from discomfort. Their power of resisting sepsis seems better than that of adults; septic wounds heal readily and phlegmons seldom extend far; such conditions as punctured infected wounds of the knee joint do not cause much anxiety, whereas in adults they give most alarming symptoms and are frequently fatal. On the other hand children do not stand hemorrhage well, as the total quantity of their blood is small, and operations of undue severity are not well borne. These conditions present strong arguments for operation in strangulated hernia; the ordinary operation for this condition is not a severe one and is well within the resisting power of most infants, while the resection of intestine or formation of artificial anus are badly borne.

---

* Gibson—N. Y. Med. Record, 1897. LII., p. 73.

† Marjautschik—Centralblatt f. Gynaækol., 1896, p. 345.

A few words may be said concerning the technique of the operation. The reports indicate that there is still a prevalent belief that the operation for strangulated hernia should be done by cutting down to the sac or to the intestine through the various layers which cover them and that then the constriction should be cut from below with a blunt pointed bistoury or upon a grooved director. This method is to be avoided, particularly in infants, the tissues are so delicate that it is very dangerous to divide them over a tensely strangulated intestine. The incision should be made through the aponeurosis of the external oblique muscle at a point above the strangulation where the tissues are nearly normal. A blunt instrument may then be passed from above and the external ring opened—if any further constriction should exist it may be divided in a similar way. In this method there is hardly any danger of injuring the instine.

In the two cases upon whom I have operated there was no occasion for hurry or for closing the opening without doing the routine operation for the radical cure of the hernia.

135 WEST SEVENTY-THIRD STREET.

Chemistry of the Thyroid Gland.—Robert Hutchison (*J. Physiol.: J. Chem. Soc.*). The thyroid contains two proteids—a nucleo-albumin and the colloid matter; the former is present in small amount and is probably derived from the epithelium. The colloid is contained in the acini. It contains a small amount of phosphorus, a considerable proportion of iodine; it yields no reducing substance on treatment with mineral acids and no nuclein bases, and is, therefore, neither a mucin nor a nucleo-proteid. On gastric digestion it is readily split into a proteid and a non-proteid part; both of these, but especially the latter, contain iodine. The non-proteid part contains all the phosphorus of the original substance. The ordinary extractives are fairly abundant, but the colloid is the active physiological constituent of the gland; both parts of it are active, but the non-proteid part is the more active of the two.—*Buffalo Medical Journal.*

EIGHT CASES OF MALFORMATION OF THE HANDS AND FEET.*

BY FREDERICK A. PACKARD, M.D.,
Philadelphia.

While the subject of congenital deformities of the extremities is one that is usually considered one of surgical rather than of medical interest, I venture to bring the subject before the society partly because of the fact that such deformities are frequently first seen by those especially interested in diseases of children, partly because most of my cases were seen at the Children's Hospital during my various terms of service in the medical dispensary and in the wards. Three of the cases had reached maturity before I saw them, but I have cited them as rather extreme examples of this class of deformity.

In any dispensary or hospital for diseases of children a number of cases presenting one or two accessory fingers, thumbs or toes are seen, so that instances of this class are quite commonplace affairs, and I have kept no note of such in my card-index. Upon the admission to the wards of the Children's Hospital of C. B., a few days ago, I decided to look up my other cases and report them to the members of the society. Some of these patients are here to-night, others I could not reach either personally or by letter, and I shall simply recite the notes made of their deformities, often-times hurriedly, at the time of examination.

The first example is the little girl, M. R., now eleven years old, who came under my notice in October, 1893, at the Dispensary of the Children's Hospital, to which she was brought by her mother on account of acute bronchitis. In examining her the following conditions of her left hand are noted: The carpus, metacarpus, and thumb are normal. The index finger is present and appears to be somewhat larger than that of the right hand. It has three phalanges and a perfect nail. On the dorsum of its middle joint there is seen to be a deep transverse furrow. The rest of the hand is represented by a conical stump, the apex of which is formed by the remains of the proximal phalanc of the middle finger with which are blended the proximal joints of the ring and little fingers. The phalangeal bones on ordinary examination appear to be distinctly separated, but a skiagraph (Fig. 1) shows more definitely their condition and relative positions. It is stated by her mother that at birth there was a well-formed, but stunted nail, at the end of this stump, but that it was removed by her physician soon after birth. During her pregnancy the mother was in good health and suffered no injury or fright. The hand is quite fairly useful, as would be expected from the fact that the thumb and index finger are preserved, and that the metacarpo-phalangeal joints of the fused stump are functionating.

---

* Read at the October meeting of the Philadelphia Pediatric Society.

The case is very clearly one of intra-uterine amputation by a band or by the umbilical cord, as is evidenced by the shape of the stump, by the rather scar-like condition of the adherent skin on its surface, but particularly by the deep and broad depression across the dorsum of the index finger which precisely continues in its direction the line of amputation. In this latter respect it closely resembles one of Thomas Annandale's cases (The malformations, diseases and injuries of the fingers and toes, etc., Case 11), where the same evidence of a constricting band was seen as in the case here presented.

The second case, D. L. (Fig. 2), came under my care at the Children's Hospital Dispensary in 1892, at which time he was ten years of age. His left hand is entirely absent save for the carpus. This appears to be normally formed and can be moved even more freely than can the ordinary wrist. The end of the stump was so callous from the uses to which he could put it that when he was seen in the dispensary it was impossible to definitely state as to the presence or absence of scar-tissue. His mother denies any knowledge of a possible maternal causation by disease or fright on her part, and there is no other case in his family. It was to my mind a plain case of intra-uterine amputation by a band or the umbilical cord, but on more careful examination now on seeing him again, two distinct nails can be made out surmounting two of the five small papules that are evidently the rudiments of fingers.

In December, 1896, a man, aged forty-six, applied at the Pennsylvania Hospital for treatment of pruritus. In making the routine examination of his chest it was noticed that his left arm appeared to have been amputated at the elbow joint. On inspecting the supposed stump there were found five small wart-like growths grouped in a straight line across the end. This led

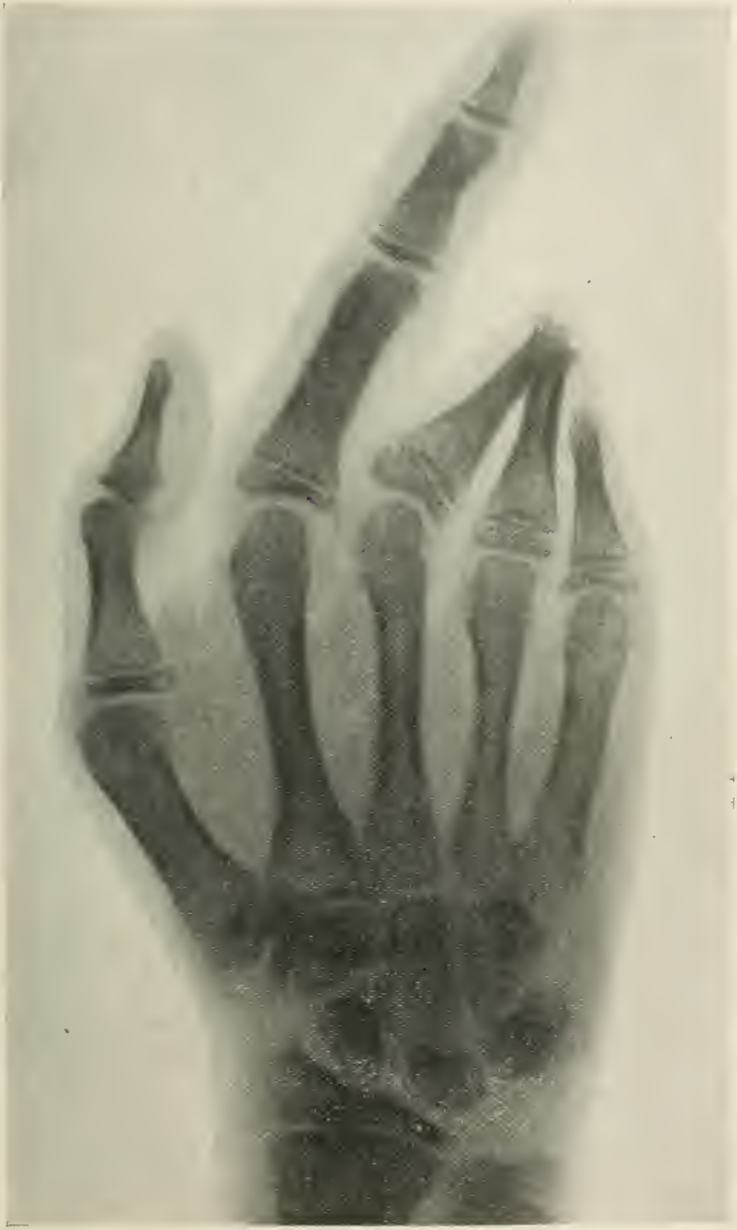


Fig. 1. SKIAGRAPH OF LEFT HAND OF M. R.

to further questioning, and he stated that he was born with the conditions noted. The left upper extremity consisted in the main of the upper arm with an apparently normal humerus, of a poorly differentiated elbow-joint, and of about an inch of forearm containing two small bones. At the centre of the round, smooth stump there was found the row of small papules mentioned above. These formed a straight line imperfectly notched by four depressions. The length of the row was a little over 1 cm., its height 75 cm. The separate digits varied in height from 1 to 2 mm., and it was curious to observe that the outer (radial) mass was decidedly thicker than the others. No nails could be discovered even with a lens of quite high power. In this case intra-uterine amputation cannot explain the conditions found, nor do I know of any adequate solution of its etiology. If a band or the cord had ligated the developing arm, the representation of the hand, which I take the row of papules to be, would have gone with the major part of the forearm. Simple failure of development from fœtal arterial disease would not give us so well-formed an upper arm with a well-marked fragment of forearm and then no representation of parts below save what could not represent more than a portion of the hand.

As I have said, the occurrence of a supernumerary digit is by no means rare. The multiplicity of his accessory digits make worthy of record the case of a boy, aged four weeks, who was brought to the Dispensary of the Children's Hospital in August, 1894, for intestinal disturbance due to improper feeding. He had five fingers and thumb on each hand, on his left foot six toes, making in all a total of three more digits than fall to the lot of the ordinary mortal.

A more complicated condition was presented by a boy, aet. twelve years, who came to the same dispensary shortly before the last case. He was undergrown and had a decidedly acute facial angle. On each hand there were two perfect thumbs with their corresponding metacarpal bones; on each foot a double hallux. On one of his hands the digits were all united from their bases to the last joint, the distal phalanges being alone free. The webs consisted of two layers of skin with apparently a little lax areolar tissue. The radial (accessory?) thumbs on each hand had terminal phalanges strongly deviated toward the median line, giving the hands a curiously simian aspect. This appears to have been the only case of the kind in his family.

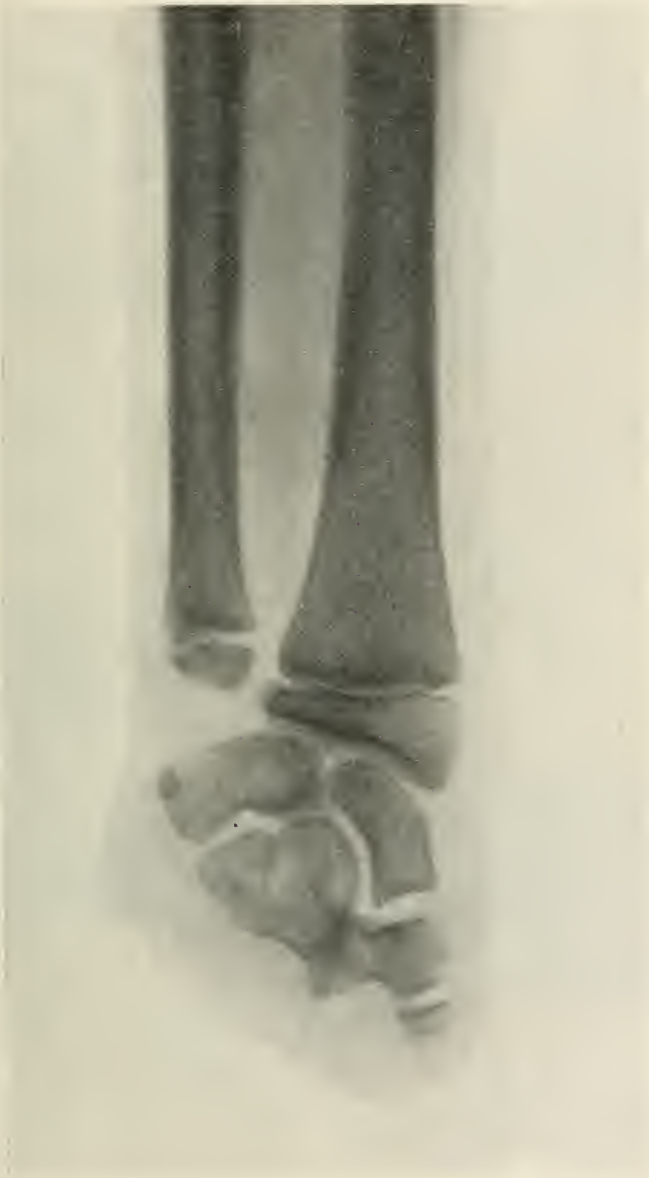


Fig. 2. SKIAGRAPH OF LEFT ARM OF D. L.

The little boy (C. B.), whom I show, was admitted to the Children's Hospital on October 4th. He is four years of age, a native of this city. He was brought to the hospital partly on account of an acute bronchitis, chiefly because of his mental backwardness. His father is in the last stages of consumption. The mother has given birth to fourteen children. The first eight were healthy, the next three were prematurely born and dead; the patient was the twelfth child, the thirteenth died of inanition at the age of three months, and the fourteenth died of convulsions of unknown cause at the age of six months. Only three of the fourteen children are living. No specific history could be elicited.

This child was born at the seventh month of gestation, but seems to have been well nourished, and, aside from the deformity of its feet, well developed. On the day of birth the child began to constantly move the head from side to side and to hold it retracted. This has continued in a gradually lessening degree until the present time. The first tooth appeared when the child was two and a half years old.

It has never been a bright child, and even now, at four years of age, it only commands one or two monosyllables. The mother says that it seems to understand what it hears and that it can imitate fairly well. It cannot walk unless supported, but this is probably a result of its defective pedal development rather than ordinary "backwardness."

The child is rather fat, but is decidedly pale. It has cut all of its teeth. The head is large and round, the forehead slightly overhanging, the anterior fontanelle still open and pulsating. There is no rigidity of the neck. The under lip shows slight overdevelopment. No enlargement of the thyroid can be detected and the neck has the normal appearance of fulness, so that presumably the thyroid gland is normal.

The trunk and upper extremities are well formed, the back being straight and muscular. Save for slight bronchitis the examination of the chest is negative. The abdomen is large and rounded, the liver edge felt slightly below the costal margin; the spleen of normal size. The scrotum is very small, and both testicles are in the inguinal canals.

The legs and ankles are well formed. The right foot is normal down to the tarso-metatarsal joint. The four metatarsal bones are in two groups with a deep cleft between them. The

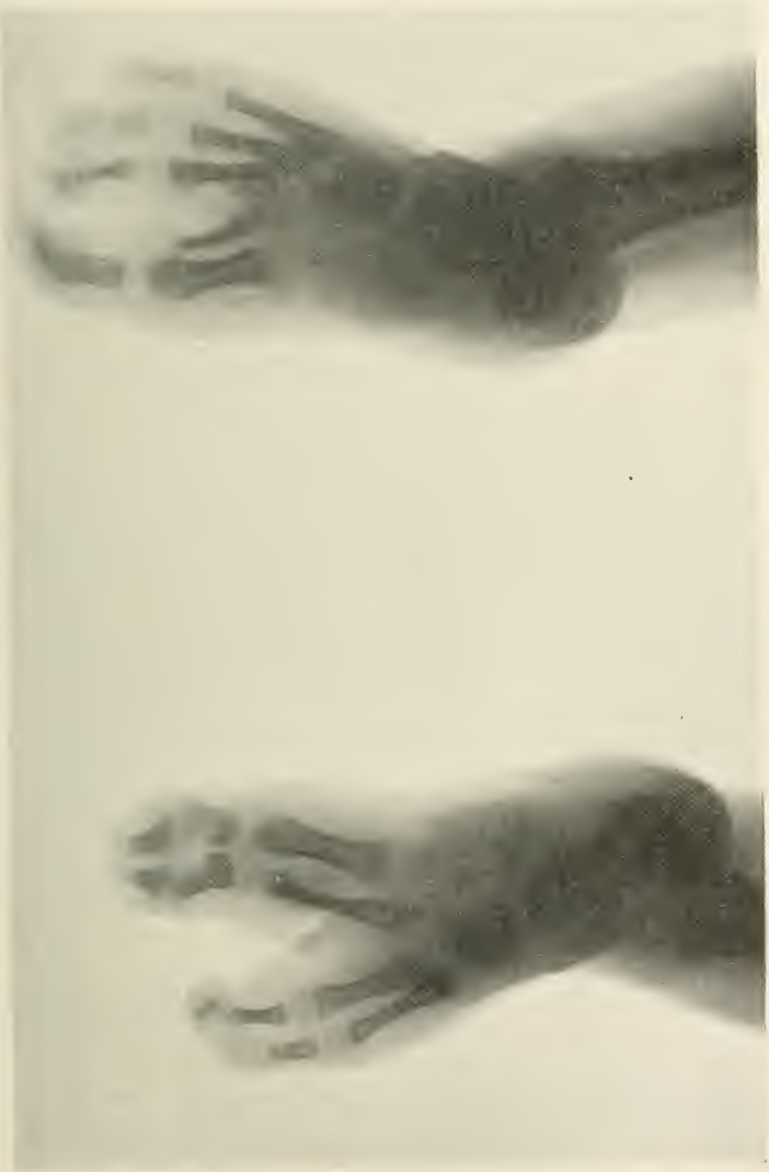


Fig. 3. SKIAGRAPH OF FEET OF C. B.

inner division of the foot looks like an adult great toe. It is composed of two metatarsals and two complete sets of phalangeal bones. It is provided with one broad flat nail with a central longitudinal groove. The outer portion of this foot is composed of two metatarsal bones, two phalangeal sets, two poorly developed nails, and a short cleft down to the base of the nails, apparently representing the separation of the third and middle toes.

The left foot also consists of two portions with a dividing cleft apparently in the position that should have been filled in by a metatarsal and phalangeal set of bones belonging to the absent second toe. The toes present are fairly well developed, but the middle and third toes are distinctly webbed. There is no family tendency to deformity of the extremities.*

In this latter point the last patient differs from a man whose case I reported to the Pathological Society (Transactions of the Pathological Society of Philadelphia. 1887. Vol. xiii., p. 9). He innocently came to visit a friend who was in the wards of the University Hospital while I was serving as Resident Physician. I saw his hands and wrote down a description of them, but could not at the time get a photograph or cast. Both of his hands were much deformed from congenital absence of some of their component parts. His right hand consisted of a thumb, an index and little finger with but two metacarpal bones. His left was composed of four metacarpal bones, three fingers and a thumb, the middle finger with its metacarpal bone being lacking. Each hand was divided into two portions running down to the wrist. His mother and father had normal hands; one sister has a hand resembling his left; another sister has a left hand similar to his and webbing of the middle and ring fingers of her right hand. One brother has both hands arranged as is this man's left. Curiously enough the only member of his generation whose hands are normal is this man's twin brother. Of his several children none shows any malformation. He said that he had a vague impression that his father's grandfather had some peculiar formation of his hands.

---

* The radiograph (Fig. 3) shows that in the right foot four well-formed metatarsals, in the left foot four well-formed metatarsals, with a rudimentary metatarsal bone near to and to the distal side of the metatarsal of the great toe and included in the same envelopes. In the right foot the middle toe is entirely lacking, and the four phalangeal bones of the great toe-like mass are much alike, although the corresponding metatarsals are quite different—in other words the large mass looks like two fused great toes. In the left foot there is apparently the shadow of two sets of phalangeal bones in the inner mass; but owing to movements on the part of the child, who kept constantly moving this portion of the foot, it is a question whether it is not simply a double image of one set of bones.

I saw another case of deformed hand some years ago under rather amusing circumstances. I was examining a man for life insurance and came to the question: "Have you any scar or defect that would lead to your identification?" His answer was "no;" but on looking at his hands I found that one of them consisted solely of a thumb and little finger with their corresponding metacarpal bones. No scar could be detected and he said that he had been born with this defect. A better mark of identification could with difficulty be presented.

The explanation of such defective formations as those present in the last three cases narrated is one of great difficulty, and, so far as I am aware, none has ever been advanced with any degree of confidence. Only three explanations are possible—defect in the formation of the embryo from disease of the sperm or germ, fœtal vascular disease of limited area, or destructive pressure by the umbilical cord or adventitious intra-uterine bands. The latter can explain the clear cases of intra-uterine amputation, and possibly some of the cases of failure of development of one portion of the extremity, as in the last case mentioned. Localized arterial disease in otherwise healthy embryos can hardly be thought of. The existence of some defect of germ or sperm can alone account for the family cases, unless we fall back upon the much disputed maternal impression theory and look upon the primary case as accidental, the other, younger, cases resulting from the mother's natural dread of repetitions of a like deformity in the fœtus at the time developing. Personally I do not believe that maternal impressions deserve all with which they are credited. Although there are undoubted cases of phenomena difficult to explain in any other manner, I think that much of the evidence brought forward in support of the occurrence of such maternal influence is of about the same value as some of the evidence regarding spiritualism collected by the committee of Psychical Research.

110 SOUTH EIGHTEENTH STREET.

For the accompanying skiagraphs I am indebted to the kindness and skill of Dr. J. C. Starbuck of the resident staff of the Pennsylvania Hospital.

REMARKS ON THE USE OF THE FARINACEA IN THE DIET OF LATER INFANCY.*

BY D. J. MILTON MILLER, M.D.,
Philadelphia.

An apology seems almost necessary when remarks are ventured upon so trite and so frequently discussed a question as the diet of young children. Over no department of pediatrics has so much study and labor been expended, and in no department have the results been more satisfactory and far reaching for good. Our methods seem at last to be emerging "from the realms of mere empiricism, and are beginning to rest upon a true scientific basis," and it is to the honor of American medicine that the greatest advances in this subject have been made by the physicians of the United States.

Yet while this is true of the feeding of infants during the first year of life, it is questionable whether the same can be said of the dietary of children after that period, for it is just at this time, *i.e.*, during the second and first half of the third year, that the child's digestive troubles often begin. It is an every day experience to see an infant, who has thriven upon the breast or artificial food during its first year, suffer continually from digestive disturbances when that period is passed.

The cause of this is undoubtedly due, in most instances, to the tendency of the mother, acting sometimes under the physician's advice, or from the perusal of some work on infant hygiene, to put the child too early upon food too strong for its digestive powers. Under the mistaken idea that the milk mixtures heretofore given are not nourishing enough, pure milk, bread, crackers, potatoes, and strong porridges are added to the dietary. The result is frequent attacks of indigestion, and, if the diet is persisted in, the establishment of chronic intestinal indigestion, which may extend well into childhood, and which may take years of watchfulness and care before the child's digestion and nutrition are brought again to a healthy state.

That the affection mentioned is exceedingly prevalent in later infancy and early childhood must be apparent to every observer. It is met with among all classes of society—among the rich as well as the poor—and seriously interferes with the child's nutrition and predisposes it to attacks of acute disease, both general and local.

---

* Read before the Philadelphia Pediatric Society, February 8, 1898.

This condition may be brought about, as already observed, by the early administration of solid food, but it may also be induced when no such error has been committed, the cause then being a too rapid change from modified or diluted milk, or the breast, to a diet of pure milk. Many infants are unable to digest undiluted milk during the greater part of the second year, and most do better upon a mixture in which the proteids do not exceed three per cent. until the eighteenth month, or, if the digestion is weak, until the close of the second year, or later.

The most potent cause, however, is the excessive use of the farinacea, or their employment in a form not adapted to the child's digestion. The evils of giving young children a diet too rich in the starches, or one in which they are exhibited in a form not readily assimilated, has been insisted upon by various writers for many years, notably by Eustace Smith and Louis Stare, yet its importance is not sufficiently recognized by physicians, although the injurious effects of their administration during early infancy is now generally understood.

The impression still prevails that these substances are light and nutritious, and are better suited for the growing child than the albuminous elements. But it should be remembered that the carbohydrates, of which starch and sugar are the chief representatives, are not used directly in tissue formation. They are largely converted into fat, and serve also as a lighter kind of fuel for combustion. They are of less value than the proteids or fats, yet they probably are essential to the perfect nutrition of the growing child, as they are supplied so abundantly to infants in their natural diet.* But the child during the second year, from its occupation and habits, does not need the large proportion of carbohydrates that it receives earlier in life, *i.e.*, 6 of carbohydrates to 1 of proteid matter, and certainly is not able to assimilate them if given in large amounts in the form of farinaceus food. The child requires at this period more nitrogen in proportion to the other food elements (as 1 to 3, according to W. B. Cheadle) than during the first year, which, to insure its complete oxidation, should be given with a minimum of carbohydrates. In addition, the amylolytic functions of the salivary glands and pancreas are not fully developed until the close of the first year, and, in many infants, clinical experience would seem to indicate, are not very active until a much later date. It would appear, too, that many children, as they are met with in practice, inherit weak digestions, particularly in the power of converting the starches. Especially is this noted in the offspring of parents who are gouty or lithæmic, one of the chief characteristics of which state is an inability to digest the starchy and saccharine elements of food. W. H. Draper (on the Nature of the Gouty Vice, Am. Clin. Lectures, N. Y., 1875, i., 279) says "a careful study of the digestive weakness of young children will often discover the inheritance of the parental liver."

---

* W. B. Cheadle; Artificial Feeding and Food Disorders, London, 1892.

Without going further into the chemical and physiological aspects of the question, the fact seems well established that the farinacea when given in large amounts, or in forms not readily assimilated, during the second and third years of life, are most frequent sources of indigestion and ill-health. They are exceedingly prone to undergo fermentation, and, by constant irritation of the intestinal canal, induce a catarrh of the mucous membrane, which may interfere materially with digestion and absorption, and finally set up the clinical picture of well-marked chronic gastric or intestinal indigestion, with its consequent disorders of nutrition.

The diet list in some of the standard works on infant feeding, if followed implicitly, would, and undoubtedly in many instances does, cause much indigestion in the infants who partake of them. Louis Starr, Eustace Smith, Soltan, Fenwick, Cautley, and Griffith recommend from the twelfth to the eighteenth month the following dietary: First meal, bread and milk; second meal, milk, buttered bread or biscuit; third meal, broth and bread; fourth meal, bread and milk. On alternate days Starr advises baked potato and yolk of egg, and the others, also, add these articles at this age. From the eighteenth to two and one-half years the same authors advise: First meal, yolk of egg, buttered bread, porridge and milk; second meal, milk and biscuits; third meal, broths, bread, underdone meats, baked potatos, rice pudding and junket; fourth meal, bread and milk. To these Cautley adds syrups and farinaceous puddings and jellies, while A. V. Meigs permits "all the crackers and bread a child wants after the first year."

All these authors, however, insist that many children can bear nothing but milk and milk foods up to two or even three years, "and if enough is taken and the child thrives, no change is necessary." Griffith, in addition, cautions the mother not to plunge indiscriminately into this solid dietary as soon as the twelfth month is reached, but to proceed slowly, gradually testing the child's capacity for digesting the more solid articles mentioned. But the tendency of most mothers, and physicians often, is to follow to the letter the advice of these authorities. The writer himself, in his earlier practice, fell into this error, until taught otherwise by experience. Apart from the advisability of giving the amount of farinaceous food advised in the above lists, it is doubtful if a child of twelve, fifteen or eighteen months could assimilate them unless presented to the digestive organs in a more divided state. An infant of twelve to eighteen months, and many of two years, cannot chew bread sufficiently to insure its assimilation in the gastro-intestinal tract. Most young children, as a little observation will show, simply break bread and crackers in the mouth, and swallow them in pieces of various sizes, in which state they are sometimes recovered in the dejecta. The advice to give potatoes, also, is very questionable. Nutritious as this vegetable is, its starch granules are difficult of solution, and are apt to undergo fermentative changes in the intestinal canal. It should not be given until the twenty-fourth or thirtieth month, and should always be baked. Its valuable antiscorbutic properties can well be supplied by orange juice. Oatmeal porridge, as ordinarily made, and even when well cooked, from the amount of irritating material it usually contains, as well as its large proportion of starch and fat, is very apt to disagree with the child during the second year, if given daily and unstrained. Children who consume large quantities of this cereal are disposed to be fat and prone to skin eruptions, and are often subject to attacks of acid indigestion, in which large quantities of husk are passed per rectum. Indeed, these two articles, potatoes and oatmeal, are the most active causes of indigestion during the second year, and in intestinal indigestion a history of their excessive consumption will often be discovered. Rice pudding, although popularly supposed to be particularly easy of digestion, is open to the same objections as the other farinacea mentioned, *viz.*, difficulty of solution by the digestive and juices proneness to fermentation.

In the diet, therefore, of later infancy, the farinacea should occupy a secondary place, although used more abundantly than during the first year. They should be given with great care and caution, the more solid forms being abstained from until the child, by experiment, has shown his capacity to digest them, which is usually not before the twenty-fourth month. The occurrence of acid fermentation, flatulence, mucous diarrhœa, nervous symptoms, particularly at night, and uratic deposits in the urine, should be regarded as an indication for their diminution, and, in aggravated cases, their complete withdrawal from the dietary. Until the eighteenth or twentieth month, and often until the twenty-fourth, they are best given in the form of gruels and jellies, made by boiling crushed wheat, barley or oatmeal for five or six hours, after having soaked for the same length of time, and then straining through cheese cloth, or rubbing through the meshes of a fine sieve, so as to permit the gluten, phosphates and part of the starch to pass through, leaving the more indigestible portions behind. This gruel or jelly can be mixed with milk in various proportions, taking the place of water, if modified milk is used, or simply added to the milk, if the infant is old enough to take that fluid undiluted. At twelve months a thin gruel may be used; later the thicker jellies. In preparing these gruels or jellies the preparation of wheat or barley, as containing less starch, should be preferred to oatmeal or the prepared flours. Crushed or granulated wheat or barley are excellent preparations for this purpose. Oatmeal may be used in constipation, although cracked wheat is almost as laxative.

If there is difficulty in digesting the farinacea when given in this way, a teaspoonful of a dry extract of malt, or five grains of extract of pancreas with ten grains of soda, added to the warm gruel, or mixture of milk and gruel, about ten minutes before administration, will partially convert the starch and facilitate its digestion.

When the child is old enough to take the cereals in the form of porridge (twentieth to twenty-fourth month), the same means may be employed, or one teaspoonful of diastasic essence of pancreas may be added to the saucerful of warm (not hot) cereal just before eating. This will often liquefy the food before the plate is emptied.

When cereals are employed alone, *i.e.*, not mixed with the milk, the many preparations of wheat should again be selected in preference to the more starchy varieties. Such are germea, wheatena, and the like. These can be alternated with oatmeal, which is best given strained until the child is two or two and one-half years old. All of these preparations should be thoroughly cooked—as a rule much longer than their manufacturers direct.

It is best not to give bread, unless crushed and mixed with the milk, until the twenty-fourth month, and then in the form of zwieback, or as ordinary bread well dried in the oven. The same may be said of the various forms of biscuits, as it is not until this age that the teeth are all through, the muscles of mastication well developed and the digestive powers vigorous and strong. For the same reason potatoes, as well as rice and other farinaceous puddings, should be omitted until the completion of the second year.

To sum up, the diet best suited during the whole of the second year, should, in the majority of instances, be largely nitrogenous with a minimum of carbohydrates, the staple being milk, or milk mixed with farinaceous gruels and jellies, with beef juice and broths, and, after the eighteenth month, as advised by Holt, rare or raw scraped beef or mutton, and, occasionally, eggs. The fruit juices, such as orange juice and baked apple, should, as pointed out by the same author, form part of the dietary from the fifteenth month on, and even earlier (tenth or twelfth month), if sterilized milk is used.

Of course, many children can digest the farinacea with benefit during the whole of the second year; but the child's nutrition would seem to be best subserved by permitting them in minimum amounts only, and, if the statements in presenting this view have been somewhat dogmatic, it is because of earnest conviction, the result of much thought and observation.

345 SOUTH EIGHTEENTH STREET.

The Pulse in Childhood.—In health tne child's pulse differs from the adult's in being much more frequent, more irregular and more irritable, that is, more easily influenced by slight causes. Alterations in frequency and rhythm unassociated with other abnormal symptoms are of little significance. In early life respiration is chiefly abdominal in type, irrespective of sex. Even in healthy infants it is irregular and uneven. It is accelerated by muscular or mental excitement, fever from any cause, interference with blood æration and thoracic and abdominal pain. Diminished frequency occurs most frequently in brain affections. Changes in the rhythm give rise to the so-called "Cheyne-Stokes respiration" and "expiratory respiration." The presence or absence of "inspiratory dyspnœa" and "expiratory dyspnœa" is significant and should be noted.—*Practical Medicine.*

A CASE OF INTESTINAL OBSTRUCTION DUE TO LUMBRICOID WORMS, SIMULATING APPENDICITIS; OPERATION, RECOVERY.*

BY E. H. BARTLEY, M.D.,
Physician to the Sheltering Arms Nursery,
Brooklyn.

The following unusual history seems worth recording on account of certain rare and peculiar complications:

S. S., aged six years, female, of rather precocious disposition, and subject to attacks of acute gastric catarrh (acute biliousness), was seized with one of these attacks on August 2, 1897, after an unusual indulgence of the appetite in a mixture of clam chowder, lager beer and ice-cream. The writer was called to see her on the evening of August 3d. She was found sleeping quietly and easily, suffering no pain, and no tumor could be felt in the abdomen. She vomited, however, a sour smelling, green vomit after the examination. She was given a mixture of subnitrate of bismuth, benzoate of soda, and pepsin, and a small saline was ordered for the next morning. She was relieved, the following day, but on the 5th she was seized with paroxysms of pain in the abdomen, followed by vomiting. The bowels had been freely opened with citrate of magnesia on the 2d, before my first visit; but the second dose, ordered by me, failed to operate, but brought on pain and vomiting, during which she ejected a lumbricoid worm. The temperature was 100½° F. The pain was principally, though not entirely, located on the right side of the abdomen. There was tenderness over the whole abdomen, the recti abdominalis muscles were very tense, and the pains were spasmodic, intermittent and violent. A slight induration could be felt in the right iliac fossa, about an inch below a line drawn from the superior spine of the ileum to the umbilicus. She was given a fourth grain of codeine every two hours, which relieved the pain, but this returned the next morning with as much severity as before, during which she again vomited, ejecting another worm.

An examination at 11 A.M., on August 6th, showed that the slight induration of the previous day had become very tense, and excessively painful to the touch. Its position now seemed to correspond with the position of the appendix. The temperature was 101½° F., the pulse rapid and tense, the face anxious, the extremities cold. Dr. Charles Jewett saw her with me a few hours later, and we decided to recommend an operation, which was performed by Dr. Jewett, with the assistance of Dr. Harold Jewett and myself, the same afternoon. On opening the abdomen, as in the operating for appendicitis, and bringing up the coecum, we found a ball of entwined lumbricoids in the ileum, resting against the ileo-coecal valve, completely occluding the opening, and many other worms in the gut above. At a distance of six or seven inches from the valve, a clot was found between the peritoneal and muscular coats of the bowel, about one inch in lateral diameter, and pressing the muscular coat down into the lumen of the bowel so as to nearly occlude it. The ileum, coecum, and appendix were very hyperaemic. An attempt was made to force the worms through the ileo-coecal valve, but without success. The appendix was swollen and œdematous, intensely congested, and it was thought best to remove it. The ileum was then opened by a small incision, and the worms removed with the forceps, after which it was closed with sutures.

---

*Read before the Brooklyn Pathological Society, October 14, 1897.

During the manipulations, the hæmatoma, above referred to, appeared to enlarge somewhat, dissecting along between the coats of the bowel, until it covered an area measuring about one and a half inches in diameter. To remove this an incision was made through the peritoneal coat, the clot broken up and turned out and the opening stitched up. The whole of the exposed portion of the bowel was then thoroughly cleansed with diluted pyrozone, and returned to the abdominal cavity, and the incision completely closed. Although the time of the operation was rather long, owing to the time consumed in the attempts to dislodge the worms without opening the gut, the patient reacted fairly well. The anaesthesia was begun with chloroform and then continued with ether.

All went well for forty-eight hours, when the patient complained of a sharp pain in the left leg, which was noticed to become very cold. Gangrene set in, and on the 13th, or seven days after the first operation, an imperfect line of demarcation formed about four inches above the malleoli. On the 17th amputation at the knee joint was performed by Dr. Wight. The child made a slow but perfect recovery. It is worthy of remark that, after the amputation, a necrosed spot, about one inch in diameter, appeared on the posterior aspect of the right leg. The parents insisted upon the burial of the amputated leg, and no examination as to the cause of the occlusion of the artery was made.

The appendix was submitted to Dr. Van Cott for examination, who found it to be in a state of active inflammation. The walls were infiltrated with round cells. It was filled with a thick mucus tinged with blood. There was no pus.

The features of interest in this case were the large number of worms, about forty in number, the complete obstruction of the bowel by them, and the resemblance of the tumor produced to that of appendicitis; also the peculiar complications, both at the primary operation, and the formation of the thrombus in the anterior tibial artery. I will not attempt an explanation of the production of this accident. Obstruction of the bowel produced by a mass of worms is probably not very rare, although but three recorded cases have come to my notice after a search through the literature.

Stepp (*Centralblatt für die Med. Wissenschaft.* 1888. No. 27,) cites a case of intestinal obstruction due to lumbricoids, about forty in number, twisted into a mass, and lodged at the ileo-coecal valve. The patient was a boy four years of age, and death occurred within an hour and a half after medical aid had been summoned.

Wyeth reports a case (*Polyclinic*, January, 1894,) in which he operated upon a man twenty-four years of age for intestinal obstruction, and which he found to be caused by lumbricoid worms.

Hillyer (*Lancet*, 1892, No. 11, p. 773,) relates a case of this kind. where there were at the same time extreme nervous symptoms. The child was five and a half years of age. The child suffered with severe abdominal pain, for which castor oil was administered, which caused vomiting but no action of the bowels. Round worms were found in the vomit, and death resulted. The autopsy showed occlusion fifteen inches above the ileo-coecal valve, by a tightly wound ball of round worms. Forty-two worms were found. Extreme congestion of the intestine above the obstruction was found.

21 LAFAYETTE AVENUE.

Clinical Memoranda.

AN UNUSUAL CASE OF INFANTILE SEPSIS ASSOCIATED WITH SUBCUTANEOUS AND SUBPERIOSTEAL HEMORRHAGE.

BY H. B. WHITNEY, M.D.,

Professor of Medicine, Denver University; Visiting Physician Arapahoe County Hospital, Denver, Colo.

On January 24, 1898, I saw the following case in consultation with Dr. F. E. Warren, of Denver:

Baby H., aged 15 days, female, only child, mother a vigorous healthy woman of 24, married three years, had miscarried a year previously in the 10th week, without syphilitic taint or other known cause. Present labor normal with the exception of rather offensive lochia and a slight fever of three or four days' duration for which it had been thought best to give an intrauterine douche.

The child was well nourished and healthy at birth, without asphyxia; it is thought to have weighed about eight pounds. It persistently refused, however, to take the apparently normal breast until two days ago, and in the interval was fed on a mixture consisting of 1 part cream and 6 parts water, of which it took about 2 ounces every 1½ to 2 hours. This food did not seem to disagree with the infant; there was then no vomiting or diarrhœa, and the appearance of the stools was satisfactory. But the infant had failed to thrive, it had lost steadily in weight, was irritable and fretful. For three or four days past it had seemed feverish.

On the evening before I saw the child a small bluish spot had been noticed on the back of one hand. Later the legs below the knees had suddenly become of a dark bluish color and the left knee had begun to swell.

On examination I found the child moderately emaciated. It seemed weak and ill nourished; and a very slight yellowish discoloration of the skin, the residue of a moderate icterus, gave it a decidedly cachectic look. The rectal temperature was 103°, respirations normal, pulse rapid but of fairly good strength.

The most noticeable feature of the case was the condition of the legs. On the left knee was a large subcutaneous hemorrhage appearing as a blue-black discoloration of the skin, irregular in contour, about the size of a dollar. Below this the whole leg and foot were of a quite uniform dark blue color. The knee was slightly enlarged, and the leg from knee to ankle was markedly swollen, hard and evidently tender to the touch. The right leg presented a similar dark blue discoloration from the knee downward, but less intense and without the swelling or any well-defined subcutaneous hemorrhage. A small blue ecchymosis, the size of a pea, was found on the back of the left hand.

With the exception of a moderate enlargement of the spleen, so that it could be readily felt, further investigation was negative. There was no sponginess or bleeding of the gums, and no history could be obtained of any other form of hemorrhage than the subcutaneous. No eruption was found beyond a slight intertrigo about the anus, and the palms and soles showed no evidences of desquamation.

The lungs and heart were apparently normal. The abdomen was flat and soft, and the liver easily felt of normal size and consistency. The umbilical wound was normal in appearance; it was well retracted and presented a very small area of inspissated pus without any surrounding redness or induration.

At first thought, the large ecchymosis about the left knee and the apparently subperiosteal swelling of the leg below, suggested infantile scurvy. It seemed, however, impossible that scurvy should have developed at such an early age, and it did not account for the rather high temperature. The latter, which had apparently begun on about the 10th day after birth, the rapid loss of flesh and strength, and the enlarged spleen, pointed rather to some form of pyogenic infection, which may at times be associated with subcutaneous or other hemorrhage. It is also well recognized that such a diagnosis is not inconsistent with an apparently healthful condition of the umbilicus, even when this has been the door of infection. But it is certainly unusual in a case of sepsis for the hemorrhagic feature to occupy so prominent a position.

The child lived but three hours after the above examination was made, and there was no autopsy.

726 FOURTEENTH STREET.

DOUBLE HARELIP OF THE LOWER LIP.*

BY W. O. ROBERTS, M.D.,

Professor of Surgery and Clinical Surgery in the University of Louisville,
Louisville, Ky.

I recently operated upon a unique case at my clinic at the University of Louisville. The patient was a child, aged three months, with a double cleft (harelip) of the lower lip. I have never seen, nor have I heard of a case of the kind before. There was a little cleft in the lower jaw which did not extend entirely through the bone. It resembled in every respect a harelip of the upper lip. The septum was removed, the edges pared, and the lip brought together without any trouble. A perfect result followed the operation.

DR. P. F. BARBOUR remarked that the case was unusual because the formation of the lower jaw is different from that of the upper jaw, and there is no reason why a double harelip should occur in the lower jaw. Double harelip of the upper jaw is produced by a lack of development of the superior maxillary processes or of the fronto-nasal process which forms the intermaxillary bone. But there is no intermediate growth in the lower jaw. The inferior maxillary processes may fail of complete development and thus leave a single harelip, though the condition must be extremely rare. That it does occur, is evidenced by the case reported.

DR. LOUIS FRANK suggested that some other name be applied to designate a condition of this kind, as it is not properly a double harelip. Reasoning from the embryology it is difficult to understand how a formation of this kind could possibly occur. That it does occur, however, is certain from the report of Dr. Roberts' case.

---

* Reported to the Louisville Clinical Society.

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

APRIL, 1898.

Edited by FLOYD M. CRANDALL, M.D.,
Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician, Hospital for Scarlet Fever and Diphtheria; Consulting Physician, Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241–243 WEST 23D STREET, NEW YORK.

TONSILLITIS AND RHEUMATISM.

In a recent article in the *British Medical Journal*, Sir Willoughby Wade discusses most interestingly the relations of tonsillitis to rheumatic fever. The author, at the outset, thus states what he believes to be the most recent belief on the subject: "To put the amended theory concisely, tonsillitis is a primary infective disease of the lacunæ, rheumatic fever a secondary disease arising from the absorption of microbes or their products into the system."

The microbic origin of rheumatism was very slow in obtaining believers, and it cannot be said that it is even now very generally held. The author, however, believes that it is making way. It is his object to further the acceptance, with certain modifications, of the theory just stated. He first considers the nature of tonsillitis, a subject which has been discussed at great length in the Laryngological Section of the British Medical Association. This body came to the unanimous conclusion that it was an infective disease, upon grounds which may be summarized as follows:

1. The clinical phenomena correspond in every particular with those of an infective disease.

2. Cases have been noted in which the disease had undoubtedly been transmitted from one person to another.

3. Various species of coccus and bacillus are to be found within the lacunæ, within the closed follicles, and even within the epithelial cells of tonsils removed during the acute stage. Leucocytes in large numbers are found associated with the microbes.

There is no doubt that the tissues of the inflamed tonsil contain large numbers of microbes. The abundant lymphatic tissue of these organs renders the absorption of any toxines which these microbes may generate, very easy. All clinicians concur in recognizing a catarrhal element as an early factor in the production of tonsillitis. We can well comprehend how an arrest of mucous secretion; or a change in its composition, or a denudation of the membrane might favor both the introduction of microbes and their growth. Thus only can we explain the well-ascertained fact that the throat is habitually infested with micro-organisms, some of them known to be usually poisonous, and yet infection occurs only occasionally. Which single microbe or what combination of microbes are the essential element in tonsillitis has not yet been ascertained. Still less can we say what is the microbe element in rheumatism, assuming that is a microbic disease.

The case as regards the tonsils, according to Wade, stands thus: Though not proved in the stringent manner properly required by Koch, there is the highest degree of probability that tonsillitis is an infective disease. The case as regards rheumatism stands thus: Inasmuch as it so frequently follows an infective disease, and that all its features can be explained by the assumption of a microbic infection, there is a high degree of probability that it also is an infective or microbic disease. If we take into account other features of rheumatic fever besides those already alluded to, this probability will be heightened. Among the prodromata of the full attack we may observe anæmia, undue fatigue, chill, wandering pains.

The author studies with considerable care these various manifestations and classifies the forms of tonsillitis. The facts which he presents have convinced him that there is a very high degree of probability that rheumatic fever does directly depend upon microbic poison. To convert this probability into certainty much is required. Further clinical evidence is required of the association of the disease with slight throat disorders, whether these have or have not been preceded by active tonsillitis, and whether they are continuous, or remittent, or recurrent. This applies also to chorea and to erythema nodosum, to slight or subacute rheumatism, as well as to pronounced rheumatic fever.

In medicine, the author reminds us, as in all other walks of life, our actions must, on a vast number of occasions, be guided by and based upon not certainty but probability. It is, therefore, important that practitioners recognize the necessity of attending to the disinfection of the throat in rheumatism, however slightly it may be disordered, and however slight the rheumatic symptoms may be. Whatever the true relationship between the two diseases may be, these precautions are certainly wise, and their observance can result only in the good of the patient.

THE MODERN CHILD.

To the student of sociology, one of the most notable features of the past few decades is the growing attention bestowed upon children. The thought now devoted to them would amaze our ancestors of three generations ago. Child-study has become one of great importance. Thousands of men and women are being trained in scores of normal schools for the one purpose of instructing young, for the work of a teacher is now believed to be one demanding extensive and peculiar education. Volumes are written annually for children and of children, while journals and magazines of the same character have increased a hundred-fold. The children are apparently considered a far more important factor in every household than they were fifty years ago. It is at least a fact that they receive more attention and are brought into much greater prominence. The average child of to-day has a score of toys where his grandfather had one. Many children are overburdened with them, and are less happy than they would be with a smaller number. The most contented and quiet children that the physician sees in his rounds are certainly not those with the most playthings.

We are far from criticising the general tendency to bestow more attention upon children and more thought upon their education and training, but it cannot be denied that the matter in many families is carried to a very injudicious extreme. Neither can it be denied that the general tendency is in the direction of bringing children into too great prominence, in making them the most important and first-to-be-considered members of the family, and in laying burdens upon them too great for their strength. These errors are undoubtedly greater in the cities and large towns where the high tension of life is felt by all sorts and conditions of men, by children and adults alike.

We have before referred to this subject in these pages, and have pointed out the error on the part of some parents, namely, a tendency to adopt the habit of too great *camaraderie* with their children, and the growing tendency to remove the barriers between childhood and age. This naturally results in the feeling that children should enjoy the same pleasures and indulge in the same pastimes as their elders. Such recreation is frequently of a character far too stimulating for the sensitive nervous organism of the child. The prevailing tendency of the times is certainly to over-stimulation of children. This tendency pervades our whole educational system. It permeates juvenile literature, it is manifest in childish recreations, and has invaded the home. Such over-straining and stimulation of the mental and nervous organism cannot fail to cause harmful effects during childhood, and frequently produce a neurasthenic and nervous temperament in later life.

CHILDREN'S TOYS.

We had occasion not long since to speak of the amusements of children and their effect upon the health and well being, and hence their relation to the work of the family physician. The amusement of young children is largely derived from toys and playthings. The character, therefore, of their toys becomes of importance even in the case of healthy children.

One of the most noticeable peculiarities of childhood is a tendency to become attached to certain things and to cling to them most persistently. The young child loves certain nursery songs, and never tires of hearing the mother sing them over and over. He loves certain stories, and listens with minute attention to their hundredth repetition. He becomes attached to certain toys and persistently goes back to them in preference to the new and more handsome ones, and clings to the old dilapidated doll in preference to the most gorgeous new one. All this is common knowledge to every observer of children.

An explanation, or a partial explanation at least, is not difficult to reach. A child's mental capacity is yet undeveloped and his comprehension is very small. He knows and appreciates the old familiar doll and its few clothes. The new one, with its closing eyes and jointed limbs and its complex and elaborate dress, is beyond his small comprehension. It tires him as much to investigate and unravel all its mysteries as it does his lawyer father to master an intricate case. So he returns to the old one that he loves and comprehends without effort.

If the child is content with simple toys, why force upon him those that he does not love so much? Why not follow the plain teaching of nature and allow him to pass his early childhood in the most simple and contented manner possible?

It is entirely true that he can soon be educated out of these simple tastes, too often at the expense of his own contentment and the happiness of those about him. When he has once formed tastes for less simple amusements he cannot be forced back into the old ways of life. If he becomes accustomed to a multitude of toys and a mob of dolls, and daily expects something new, the time will come when his requirements cannot be fulfilled. He has tried and has become tired of every amusement adapted to his own age and of that far in advance of it, and he becomes a burden to all about him.

Mental development is gradual and is not of a sudden growth. The infant outgrows his rattle and ring, and the young child gradually grows beyond his simple toys. But there are then ready for him more elaborate playthings, and these in turn, as childhood advances, give place to books and games. Each period of childhood, youth, and age has its appropriate amusements. The child under judicious management passes from one stage to another and need not lack for entertainment from the cradle to the grave. It is doing him a wrong to force upon him amusements beyond his age and to coerce him into pleasures which properly belong to later years.

Purulent Arthritis in the Course of Epidemic Cerebro-spinal Meningitis.—Fronz (*Wiener kleinische Wochenschrift*) reports the case of a boy, aged two and one-half years, admitted to the hospital with all the symptoms of a cerebro-spinal meningitis and an arthritis of the right ankle-joint, which had begun three days after the onset of the meningitis. Lumbar puncture gave issue to a turbid fluid, containing, besides numerous leucocytes, a great number of intracellular meningococci, which proved to be extremely virulent for mice, but less so for guinea-pigs.

Pus removed from the articulation also contained meningococci, which failed to grow. Cultures of the blood also remained sterile.

The child died about fifteen days after entrance. Two days before death he presented successively arthritis of the elbow and thumb of the left side, and of the shoulder, elbow and wrist of the right. The streptococcus alone was found in the exudate. At the autopsy the lesions of the cerebro-spinal meningitis were found. The ankle-joint, which had contained meningococci in its exudate, was nearly well. The other articulations, which had been affected shortly before death and showed the presence of streptococci, were filled with pus.

According to the author, the arthritis of the ankle, which had existed from the early period of the disease, had been produced by the specific agent of the meningitis; while the other joint involvements were due to a secondary infection with the streptococcus. This observation shows that the meningococcus may penetrate the articulations and provoke the formation of an exudate; that this form of joint inflammation, like the meningitis due to the same cause, has a tendency to cure, which is absent in an arthritis due to streptococci or staphylococci.—*American Journal of the Medical Sciences.*

Bibliography.

Spinal Caries. (Spondylitis or Pott's Disease of the Spinal Column.) By Noble Smith, F.R.C.S., Ed., L. R. C. P., London, *Surgeon to the City Orthopedic Hospital; Surgeon to All Saints' Children's Hospital; Orthopedic Surgeon to the British Home for Incurables.* Second Edition. London: Smith, Elder & Co., 1897. Pp. vi., 153. Price, 5s.

The second edition of this excellent monograph contains several notable changes and is, on the whole, a decided improvement over the first edition, which appeared about three years ago. The addition of an index and the description of certain apparatus are the most notable changes. The addition of a section upon the forced reduction of the deformities of caries under chloroform is to be especially noted.

The chapter on symptoms and diagnosis is one of unusual excellence. This, in connection with the following chapter, in which diseases are considered which simulate caries, forms one of the best descriptions of symptoms to be found in any place.

The greater part of the book is, of course, devoted to treatment. This is much the same as in the previous edition. A new head-piece for cervical disease is described, with several other modifications of mechanical treatment. The author is even more positive than in the first edition that spinal caries is generally a curable disease. But success, he believes, depends above all things upon accurate support of the spine. In these beliefs he is fully in accord with the teachings of American orthopedic surgeons.

Transactions of the American Orthopedic Association. *Eleventh Session held at Washington, D. C., May 4, 5, and 6, 1897.* Vol. X. Philadelphia: Published by the Association. 1897. Pp. xxiv., 292.

This is one of the handsomest volumes of transactions published by the various medical societies. The present number contains thirty-two papers, and is an evidence of excellent work on the part of the Society. The papers are strictly within the line of the Society's proper work, and are fully equal to those of former years. The volume itself is striking proof of the truth of opinions expressed by Dr. Noble Smith in an excellent article entitled "An Englishman's Views of Orthopedic Surgery as Practiced in America." Americans, he believes, have taken greater strides in this department of surgery than in any other, and have on the whole done far more than has been done in England. These results he attributes to the following causes:

1. Americans are, as a rule, practical men, giving less time to the study of theoretical subjects than to the practical application of their profession, and orthopedic surgery is essentially a practical branch of surgery.

2. Americans are not trammelled by the prejudices which appertain to the profession in England, so that every surgeon who has the necessary mechanical aptitude has nothing to prevent him from turning his attention to the study of orthopedics, for he is not afraid of trampling upon traditional fallacies.

3. Orthopedic surgeons in America have devised and worked out the details of construction of the apparatus which they use, and have not depended, as most surgeons have in England, almost entirely upon the genius of instrument makers.

Intubation for Croup in Country Practice.—Abarnou (*Thèse de Paris*) has collected twenty-six cases of the above, eighteen of which recovered, leaving a mortality of 30.7 per cent. only. The tube was once obstructed by false membranes and coughed up, but, as pointed out by Bokai, from an experience of 538 cases, it is an exception for the false membranes to be pushed back by the tube, and accidents due to the operation are rare, and still more rarely serious. The introduction of serotherapy has been an important factor in the adoption of intubation which is now commonly practiced, not only in hospitals, but in many towns; the continued presence or proximity of the medical attendant is necessary, and Abarnou concludes that, when the technique is better known, intubation will become the operation of choice, and tracheotomy one of necessity only, even in country practice.—*British Medical Journal.*

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, January 13, 1898.

J. HENRY FRUITNIGHT, M.D., CHAIRMAN.

SOME PRACTICAL POINTS IN THE MANAGEMENT OF HERNIA IN INFANCY AND CHILDHOOD.

DR. W. B. COLEY read a paper with this title. (See page 241.)

STRANGULATED HERNIA IN INFANTS, WITH A REPORT OF A SECOND CASE SUCCESSFULLY TREATED BY OPERATION.

DR. CHARLES N. DOWD presented a paper on this subject. (See page 251.)

DR. W. B. DE GARMO said that a child who was old enough to have a hernia was quite old enough to wear a truss, and he had often applied a truss to an infant only ten days old. In his opinion, German silver was better than steel, not only because it did not rust, but because the pressure could be more readily regulated. He objected strongly to the Knight truss, because of its descending arm which caused the pad to be displaced if the child stooped, or the abdomen was protuberant. He favored the "cross-body truss" for children measuring less than sixteen inches. A large percentage of all patients under one year could be cured of hernia by truss treatment. If the hernia has a true peritoneal covering it is probable that a cure can be effected by a truss worn continuously for a year, but in other cases the treatment will usually extend over two or more years. The ideal operation is that of Bassini. Dr. De Garmo said that although he had seen a great many cases of strangulated hernia in infants of a year, or under, he had not been obliged to operate except in one instance. That was a case in which it had been necessary on three previous occasions to reduce the hernia under chloroform, so that he had felt constrained to operate. The child had made an excellent recovery, although he had taken the opportunity, at the time of relieving the strangulation, to perform a radical cure on hernia of the opposite side.

The following plan of making taxis had often served him well, and would frequently make operation unnecessary. Take hold of the tumor and draw it down, in this way lengthening the part in the canal at the point of strangulation. Then, without attempting to push it up, make steady pressure on the hernia so as to gradually force the contents back.

Dr. John F. Erdmann said that the question of operation would be largely decided by the size of the hernia. If the scrotum contained a large hernia, he preferred to operate early. He preferred to respect the intestine than to establish an artificial anus in cases demanding one or the other of these procedures.

Dr. J. B. Walker said that in spite of Dr. De Garmo's objection to the Knight truss, this instrument had served an excellent purpose in a very large dispensary service. Only that day he had successfully practiced Dr. De Garmo's method of making taxis in a very difficult case. In children, taxis could often be materially aided by suspending the child by one leg.

Dr. Thomas H. Manley asserted that he believed the infant's belly-band was a frequent cause of hernia, and an obstacle in effecting a cure of the hernia. By removing preputial adhesions, and consequently eliminating straining efforts at urination, one could also assist the mechanical treatment of hernia. If the hernia was irreducible, or could not be retained by the truss, an operation was indicated. While the tendency in infantile hernia was towards recovery, his experience, like that of Mr. Thomas Bryant, of London, had been that these hernias were apt to reappear in adult life. He could not understand how a Bassini operation could be done on an infant, because in these young subjects there is no real inguinal canal. He had never seen true strangulated hernia in infancy, though inflamed and incarcerated hernias were not uncommon.

Dr. A. E. Bieser spoke of a useful device employed by Dr. Lange for the management of umbilical hernia. It consists of a button made up of concentric layers of *French* adhesive plaster. This is covered with diachylon plaster and strapped to the body. Dr. Bieser said that he had even used it successfully in controlling inguinal hernia.

Dr. Coley said that he had operated upon seven undoubted cases of strangulated hernia in infants under two years of age, and he approved of doing the radical cure at the same time. It was very exceptionable to be unable to retain an infantile hernia with a truss. It was now pretty well agreed among surgeons that hernia might be looked upon as permanently cured if it did not return for three years. In 250 cases of relapsed hernia at the Hospital for Ruptured and Crippled, in eighty-five per cent. the relapse had occurred within the first year.

Dr. Dowd, in closing the discussion, said that in a very carefully collected series of cases of strangulated hernia in the adult the mortality was found to be 18.9 per cent., and in children under two years it had been placed at about 21 per cent.

Meeting of February 10, 1898.

Dr. Henry Koplik exhibited a stethoscope, modelled after the adult Yankauer-Tiemann instrument, but differing from it in having a very much smaller chest-piece.

Dr. S. Yankauer spoke of stethoscopes and the principles governing their action. He said that the stethoscope going under his name was the well-known Albion binaural instrument, but modified in its construction in such a way as to secure better results. This was accomplished by making the calibre of the neck of the chest-piece of an area equal to that of the two ear-tubes combined.

HEREDITARY SYPHILIS.

Dr. L. Duncan Bulkley read a paper with this title. He said that although Fournier only applied the term "hereditary syphilis" to syphilitic infection occurring at the time of conception, for practical purposes, it might be considered as synonymous with congenital syphilis. The child would usually escape the disease if infection did not occur until the eighth month of gestation. There was considerable clinical evidence to show that many children of syphilitic fathers exhibit evidences of the disease, while the mother is apparently free from infection. Moreover, there were many reported instances of the mother acquiring the initial lesion of syphilis after the birth of a syphilitic baby, thus indicating that she had not already acquired the disease. The paternal transmission of syphilis should therefore be looked upon as an accepted fact. Fortunately, the first effect of syphilitic infection is to produce sterility; but as the virulence of the poison diminishes, or with increased vitality of the parents, pregnancy occurs, but is usually cut short before the seventh month. As showing the very feeble vitality of syphilitic infants, it was recalled that at one period in the history of a Vienna hospital, of sixty-one children born syphilitic, fifty-nine died, and of forty-seven living at birth, only four lived more than three months. The proper treatment of these cases comprises appropriate medication before procreation is attempted, thorough medical treatment up to confinement when syphilis exists, and early and vigorous treatment of the child.

If the infant presents evidences of the disease at birth, it rarely survives more than a short time, but it may present at first nothing different from an ordinary healthy infant. The interval which elapses before the development of the symptoms of the disease is quite variable. The majority of syphilographers place one year as the outside limit, but some good observers claim that they may not manifest themselves for several years. Out of a series of 249 cases collected in France, 217 presented evidences of the disease before the third month, and it is safe to say that 75 per cent. exhibit the first evidences of the disease within the first three months. The infant becomes peevish, the breathing difficult and harsh; then the characteristic "snuffles" develop, and later, sores about the mouth. As the disease advances, digestion suffers and the child emaciates.

The skin symptoms of hereditary syphilis are essentially those seen in the acquired form, the roseola being most commonly observed. Although these macules gradually darken, too much stress should not be laid upon the so-called "copper hue." A little later, there may be a crop of dull red, flattened papules, without any special arrangement, and condylomata may be seen around the mouth and anus, and perhaps also about the fingers and toes. It should be remembered that the secretion from these lesions is highly contagious. Bullous eruptions indicate a serious impairment of the vitality, and if they appear early, are a very evil omen. If the central incisors of the upper jaw are "pegged" and thickened—the true Hutchinson teeth—they are of positive diagnostic value.

Regarding the transmission of the syphilitic virus, Dr. Bulkley expressed the opinion that it might even be carried to the third generation. The number of cases of innocent infection was very great. It was questionable if the child of parents who had recently become syphilitic should ever be wet-nursed, because it was impossible to say when mucous patches might develop in the infant's mouth. The nursing-bottle had proved a frequent means of carrying the disease to the mother or attendant.

The prophylactic treatment naturally resolved itself into two portions, viz.: (1) Guarding the child from the prospective dangers of syphilis in one or both parents; and (2) guarding others from the contagious secretions of the syphilitic child. It was now generally agreed that procreation should not be allowed until after at least two years of active treatment for recent syphilis, and until at least six months had elapsed without treatment and without any manifestations of the disease. When a syphilitic woman becomes pregnant, the treatment of her syphilis should be pushed most vigorously. She should be given one-grain tablets of mercury and chalk every two hours up to the utmost tolerance of the drug. Of course salivation should not be produced, and it could be to a great extent avoided by the use of appropriate mouth-washes. When the stomach is irritable, inunctions may be substituted. The treatment should be continued vigorously up to the very day of confinement, and resumed as soon as possible thereafter. Whenever possible the syphilitic infant should be nursed, and by its own mother. It should be remembered that coryza usually appears before the skin symptoms, and that the discharge is very virulent. The direct treatment of the hereditary syphilis in the child should be begun immediately after birth whenever there is even a reasonable suspicion of its existence. For this purpose nothing is better than mercurial inunctions, and these are best carried out by diluting blue ointment one-half with cold-cream and rubbing it on the abdomen and on the flannel band. It should be renewed once or twice a day. Gray powder might also be given by mouth, but iodide of potassium was seldom indicated in the early stage. In the later stages, brilliant results would often follow the free administration of the syrup of the iodide of iron.

Dr. S. Sherwell expressed his belief in a certain conservatism exercised by nature, which afforded protection to the mother from her offspring. In a very large experience in syphilitic diseases of the nose and throat he had been astonished at the numerous cases of "innocent syphilis"—a conservative estimate, he thought, would place the proportion at about 30 per cent.

Dr. Frederic R. Sturgis said that if syphilitic infection took place in the seventh month of pregnancy, the child sometimes escaped free; and that an Austrian observer had, on the other hand, reported a case in which, in spite of the fact that the mother did not contract syphilis until near the end of the eighth month, the child was born with all the evidences of the disease. He had long been of the opinion that the chances for the child were very much better when the father alone was syphilitic, but in general it was fair to assume that the mother was syphilitic, and consequently both parents should be treated. As it was well known that syphilis had its periods of repose, it was perfectly conceivable that during such period a child might be born without evidence of syphilitic infection. In such cases there was always a possibility of preventing the child from becoming syphilitic by treating the mother during pregnancy. The father, in other words, might be treated, but the mother *must* be. It had been stated in the form of a "law" that a mother can suckle her syphilitic child with impunity. From this he would draw the corollary that the mother is immune to the disease. The reported cases of exceptions to this law did not seem to him convincing. The so-called syphilitic teeth were very misleading. As their appearance was due to an arrested growth, it was surprising that they were also found in tuberculous subjects. If a *punctate* keratitis were observed about the age of puberty, it should constitute sufficient grounds for strongly suspecting syphilis. He was sceptical regarding the transmission of syphilis to the second or third generation. The best method of treatment was by smearing mercurial ointment over the belly-band. It should be remembered that children bear mercury very well.

Dr. Egbert H. Grandin said that after a careful review of the literature of intrauterine transmission of syphilis, it had seemed to him that the weight of authority was rather with Dr. Bulkley and against Dr. Sturgis. Infection occurred by three methods, viz.: (1) By infection of the ovum, the woman being syphilitic; (2) by infection of the ovum through the spermatozoa; and (3) by the intrauterine transmission of the disease to the foetus, in other words, after conception. When it was remembered that there was no direct connection between the foetal and the maternal lymphatics or blood vessels, it was evident that transmission could only occur through the layer intervening between the placenta and the placenta decidua. From this it would seem that the infection of the foetus depended upon the relative strength of the leucocytes on the foetal and those on the maternal side.

With a healthy placenta it was possible for the infant to escape, even though the mother might be syphilitic.

Dr. B. Lapowski said that the existence of radiating scars at the angles of the mouth were an exceedingly valuable means of differentiating between hereditary and acquired syphilis. The Hutchinson teeth were by no means pathognomonic of syphilis. A mother might be infected by her syphilitic child, not only by mucous patches in the mouth, but by the discharge from its nose.

Dr. Bulkley, in closing, said that he did not believe in the existence of *syphilis hereditaria tarda*. In the reported cases, the earlier manifestations had undoubtedly been overlooked. Certain alterations had been found in the placenta in cases in which children had been born syphilitic, which showed that the transmission of the virus was probably the result of the leucocytes being allowed to pass with greater facility. There was a tendency among physicians to discontinue specific treatment of the mother towards the close of pregnancy; on the contrary, it was shown that it should be pushed with the greatest possible vigor.

Post-Scarlatinal Palsies.—Alekssjeeff (*Vratch*) says that palsies are rare sequels of scarlatina; only seven cases, which the author has collected and analyzed, have hitherto been recorded. To these he adds two cases of his own, and on the basis of these nine cases he endeavors to frame a clinical picture of this form of paralysis. The affection appears either as an early or late manifestation. The former occurs almost at the very commencement of the scarlet fever, and is characterized by a great tendency to involve at the same time both the upper and lower extremities, and is sometimes followed by apthasia. The latter forms do not appear till the end of the third week of illness, and only one-half of the body is affected. In such cases nephritis and endocarditis are usually met with. The prognosis of post-scarlatinal palsies is good, complete recovery generally taking place. Tonics combined with the use of electricity and massage are useful in promoting recovery.—*British Medical Record.*

THE PHILADELPHIA PEDIATRIC SOCIETY.

Meeting of February 8, 1898.

FREDERICK A. PACKARD, M.D., PRESIDENT.

DR. J. D. MILTON MILLER read a paper on the use of Farinacea in the *Diet of Later Infancy* (page 266.)

DR. J. P. C. GRIFFITH—As Dr. Miller has mentioned the book which I am guilty of having written about the care of children, and has criticised gently my diet lists, I may defend it by saying that I thoroughly believe what I have written there. There is no absolute rule which we could possibly apply to all cases. It is impossible, too, to assume an absolute age limit for any sort of diet. Take, for instance, the custom of giving no starch before the age of one year.

Most physicians agree that starch should not be given, basing this on the belief that the infant's saliva is not capable of digesting it at this early age. It is interesting to note that Dr. Jacobi—than whom none is higher authority in children's diseases—has for more than twenty years maintained that even in early infancy starchy food is not only frequently useful, but is often absolutely necessary: and that he states, too, that Heubner, after much writing upon infant feeding, adopts much the same view. My own feeling has always been against the use of starch before the age of a year, but after much experimentation upon children I have come to the opinion that sometimes children do, for various reasons, require starch earlier than I had at first supposed, although I still believe that this is the exception and not the rule. Now if that is true of younger children it must be still more true of those past the first year of life. The chronic gastro-intestinal catarrh of which Dr. Miller speaks, is a common disease; but it is very uncommon when we consider the enormous number of children feeding upon starchy food who do not suffer from this disease. Certainly it must occur much more frequently than it does before we can say that no children should be given starch. The diet list for one year, as I have given it, suits, I think, most children. Of course we have to watch carefully in trying any new article of diet. Dr. Miller quotes me correctly that the list given contains the extrema of what a child may have from one year to eighteen months. If I find a child doing beautifully at the age of twelve months upon a diet of milk solely, there seems to me really no hurry that it should be given starch, merely because it is twelve months old.

The custom of giving potato is common and is to be deprecated. I am growing more and more of the opinion that potato starch is not a very digestible article for children in the second year of life, and I have taken the liberty of modifying in the second edition of my book what I have said of potato in the first edition. I can recall two cases seen within the last few months, in which potato undid all the good I had been trying to do by careful diet. Oatmeal I would not so promptly condemn, as Dr. Miller is disposed to do. It has been my custom not to give animal fibre before eighteen months, but to use beef juice instead. I imagine that no author of any book for mothers means to present a diet list which a mother may use as she pleases, just because the child has reached a certain age. Such certainly was not my intention nor my teaching. The family physician should say to the mother: " You may use such and such articles."

In conclusion I would say that while I agree with Dr. Miller that starch is not well borne by many children, I would yet not hesitate, as a rule, to give it to children who had reached the age of one year. In fact I think that most children should have it in small quantities after this age.

Dr. Miller.—I think the trend of my paper was somewhat misunderstood. I quite agree with Dr. Griffith that small amounts of starch are digested by infants. The point I intended to prove, and what my observation seems to prove, is that the more solid preparations of starch, given so abundantly by many people to young children, are the cause of much ill health and sickness. During the first year the starches can be given, but in that case they are given simply as a diluent to the milk, and best as Dr. Jacobi states, in very large dilution (I have always suspected that much of his success is due to this fact). He recommends in an infant under two months old a very thin decoction of oatmeal or barley; take a teaspoonful of either, ground in a coffee mill, and a pint of water, and boil fifteen minutes. This is really a more glutinous decoction. He directs milk to be diluted four or five times with the decoction during the first two months, gradually increased until, at the sixth month, the child is getting half and half. There is no objection to giving starch in this way; but my own observations are that a child will do better up to eighteen or twenty-four months on a diet in which the farinacea, particularly in indigestible forms, are largely excluded. Given as gruels mixed with milk, they are of great value. Repeatedly I have seen children whose dentition was delayed, cut their teeth in a very short time after the administration of a mixture of barley or wheaten gruel with milk.

Dr. Samuel McC. Hamill read a paper on "Auto-intoxication, with a report of a Case in an Infant of Fifteen months."

Dr. A. A. Eshner.—It might, perhaps, be better in discussing the subject as Dr. Hamill has presented it, to use the term auto-intoxication rather than auto-infection. While I admit that in the present interpretation of the word it is not impossible for auto-infection to occur, it seems to me that this condition must take place very rarely. I use the term "infection" myself, and it seems to me it is the general use of the present day, to indicate a condition that is dependent upon a cause which is capable of multiplication and transmission. The intoxications usually do not conform with this definition. The infectiousness of diseases that belong in this group depends upon the vitality of their excitive causes. In contrast, there occurs in the intoxications a gradual dilution and attenuation of the injurious agent, so that finally its power is entirely lost and its influence ultimately disappears; while in the infections the condition is quite the reverse. A small amount of infective material can be enormously multiplied and in this way its influence be indefinitely increased. A great deal of what Dr. Hamill said leads me to believe that it was auto-intoxication of which he spoke, rather than auto-infection. It cannot be denied that the latter condition may occur. Thus, a careless tuberculous patient, who will dispose of his excreta in an indifferent manner, may reinfect himself by contaminating his food or drink, or by direct introduction of the micro-organisms into his mouth or into wounds upon his surface. So, too, the patient harboring a tapeworm may reinfect himself or herself, may produce auto-infection by contaminating the fingers, perhaps, or some other portion of the body, with the ova of the parasite, and receiving these into the stomach, where they go through another stage of development; or the ova may gain entrance into the stomach, by the migration of portions of the parasite or through reversed peristalsis. It seems to me that occurrences like these might be considered instances of auto-infection, while most of the manifestations that come under our observations as symptoms arising from gastro-intestinal derangement, are toxic in nature and not infective or of a bacterial origin primarily.

Dr. Edsall.—I have examined the feces and urine of several cases by Brieger's method, and have been unable in any of the cases to discover any ptomaines, even though it seemed quite probable that gastro-intestinal auto-intoxication existed. One was a case in which attacks of syncopy or extreme giddiness with a good deal of prostration came on at the same time with marked constipation, and the relief of the constipation entirely dispelled the other symptoms. Another case was one of extreme dilatation of the stomach, with stagnation of food, and in this case there were repeated attacks of prostration with diarrhœa without any evident cause other than their dependence upon the condition of the stomach. Indeed, our knowledge in regard to the actual existence of ptomaines in cases of suspected gastro-intestinal auto-intoxication is very scanty. Gumprecht, in recently discussing auto-intoxication in tetany occurring in dilatation of the stomach, was unable to satisfy himself that any observer had proven the existence of toxic substances in the excretions of such cases or in the stomach contents, and in his own case he was unable to isolate such substances from either the urine or the stomach contents. Such cases would seem to afford the best of opportunities for ptomaine formation.

Dr. J. P. Crozer Griffith.—The form in which these auto-intoxications show themselves oftenest in children is that in which there are marked gastro-enteric symptoms. In the milder forms we see only a coated tongue, constipation and vomiting of moderate degree, the whole attack being over in a day or two. We err if we attribute the condition to something the child has just eaten, which has disagreed with it. It is rather that there has accumulated in the system, perhaps the result of indigestion, bodies of a poisonous nature. The gastro-enteric symptoms come from the inside rather than the outside. It is some fault of metabolism. Dr. Rachford has written some very interesting articles tending to show the influence of xanthin and paraxanthin in producing various symptoms which may be classified as those of auto-intoxication; but whether these bodies or others found in the urine are the cause is not yet certain.

One of the severest forms of auto-intoxication is that going sometimes under the name of cyclic vomiting. In this condition there develops at intervals more or less separated, violent, repeated, uncontrollable vomiting, lasting, it may be for days, attended by profound collapse, and sometimes terminating fatally. Yet the condition can in no way be associated with any recent indiscretion in diet. Dr. Snow, of Buffalo, has reported such a case, and Dr. Holt another. In the latter the symptoms appeared to be possibly of lithemic nature, since then there was evidently retention of uric acid in the system during the attack, and freer excretion of it after the attack passed off. That is, the relation of urea to uric acid was decidedly altered. In the last year or two I have had several cases of this cyclic vomiting under my observation, two of them desperately ill, and one other ending fatally. I have not been able to obtain satisfactory examinations of the urine in all of the cases, but as far as they have extended they would indicate a similar alteration of the relation of urea and uric acid. Yet, after all, the retention of uric acid is perhaps only a symptom and not a cause. It is just as likely that some other substance in the urine may be at work, whose nature we do not at all understand. It is possible, too, that the attacks are of the nature of a neurosis purely, not dependent upon any poison; but I confess that they seem to me to be dependent more probably upon auto-intoxication.

Dr. S. M. Hamill.—The work which Dr. Edsall has referred to I have seen. I was very much impressed with the results of the analyses there given. I do not think that in the long list of cases collected one could say that a substance had been isolated which could be considered to hold a definite causative relationship to the existing tetany. Bouchard has laid great stress upon mild degrees of dilatation of the stomach as a cause of auto-intoxication, I think entirely too much. I believe that the conditions in the intestinal tract are much more favorable for the development of fermentative processes and consequent formation of toxic substances. Constipation is a much more common condition than dilatation of the stomach. It gives rise to a retention of toxic substances in the intestinal tract, and as a result of diminished peristalsis there occurs a lessened secretion or excretion on the part of the intestinal mucous membranes. It is not improbable also that toxic substances which may be eliminated in this condition, by gradually accumulating within the intestine, are reabsorbed. I have referred in my paper to the importance of the gastro-intestinal tract as an organ of elimination, to which fact Drs. Griffith and Pearce have also referred. I am not inclined to consider the gastro-intestinal symptoms, which we frequently meet with in these cases, secondary manifestations, as these gentlemen are. In my experience the auto-intoxications observed in children have always been preceded by some evidence of gastro-intestinal disturbance, most often by constipation. In the case I have reported to-night, the very first manifestations were of gastro-intestinal origin, the toxic symptoms occurring gradually and becoming most profound after all evidences of the gastro-intestinal disturbance had disappeared.

Influence of Alcoholism in the Father Upon the Life of the Child.—Anthony (*Centralbl. für Gynäkol.*) mentions a case of a healthy woman who was married at the age of seventeen years to a notorious drunkard, and who had by him, in her nine years of married life, five miserable little children, of whom four died within the first ten days after birth. The fifth one, by great care, was raised to the fourth year, when it also died. After this the woman was separated from her husband. She then married a healthy man, and had by him two children; the elder of whom grew to be four years old, and the younger, at the time of writing, was fourteen days old. Both were in perfect health. This great contrast between the children of different fathers plainly shows, inasmuch as syphilis was not present, that the alcoholism of the father of the first children destroyed their vitality.—*Medical News.*

The Physiognomy of Disease.—In an article on the diagnosis of disease in infants and children in Practical Medicine, Dr. E. D. Chesebro says that in early life the physiognomy of disease constitutes one of the most important elements in diagnosis. As Finlayson says, "In almost every serious disease of early infancy and childhood, it is possible by studying carefully the relations of the spontaneous movements to each other, and to the attitude and expression of the child, its cries, smiles, inarticulate noises, its color, state of general nutrition, behavior in sleep and in waking, to arrive at a reasonable and often perfectly just conclusion as to the general nature and locality of the disease." To utilize to its fullest extent this element in diagnosis, an examination of the naked body must be made. Comparatively little information can be be obtained from looking at a child's face and a bundle of clothes.

Current Literature.

MEDICINE.

Holt, L. Emmett: A Case of Ectocardia with Displacement, the Heart Beating in the Abdominal Cavity. (*The Medical News.* 1897. Vol. lxxi., No. 24.)

At the time of the author's examination the infant was five months old, a male, and had been under Dr. Raynor's observation since its birth. At birth an abdominal tumor, about the size of a goose egg, and only partly covered by normal skin, was discovered. Manual pressure was applied until the mass could be kept reduced by a retaining bandage and pad. The greater part of the tumor was evidently intestinal—an ordinary umbilical hernia; but in it there was a small, hard, pulsating body. In other respects the child appeared to be normally developed. During the early weeks of its life nothing unusual was observed, except a severe degree of cyanosis. At first this was almost constant, but it gradually lessened in intensity and was noticed only on exertion.

The child was a fat, well-developed infant, much above the average in weight. While perfectly quiet nothing unusual was observed, but when disturbed, and especially when crying, it became intensely cyanotic and continued so for some minutes after the exertion ceased. The recti muscles of the abdomen were widely separated. In the median line was a circular area, about two inches in diameter, where normal integument was wanting, and where only a thin membrane covered the abdominal contents. At the lower border of this area was the umbilicus. This surface resembled that often seen over a spina bifida. When the pad was removed the hernial protrusion became about half the size of half an orange. In the epigastric region, in the median line, extending from the ensiform cartilage into the upper part of the area previously mentioned, was a pulsating tumor of conical shape, one and one-fourth inches broad at the base, which was at the ensiform cartilage, and two inches in length. It was covered only by integument and subcutaneous tissue, the muscles being separated at this point fully an inch. This body was evidently the heart. Through the thin covering all the cardiac movements could be easily observed, diastole and systole being almost as well defined as in an animal when the chest is open. By placing the tips of the fingers beneath the apex, the heart could be lifted until the apex was at the ensiform cartilage, the body of the heart disappearing completely behind the sternum. The movement did not seem to cause the child the slightest disturbance. A loud systolic murmur was present and could be heard in front all over the chest. It was most distinct a little to the left of the ensiform cartilage. It was not distinct behind. A respiratory murmur was present anteriorly over the whole chest, even in the area usually occupied by the heart.

The most probable explanation for this peculiar condition would seem to be a congenital deficiency in the diaphragm, as the result of which, instead of the usual protrusion of some of the abdominal contents into the thorax, the heart had become displaced downward to the remarkable degree described. This had doubtless been favored by the imperfect development of the abdominal walls which also led to the umbilical hernia. This cardiac displacement must have occurred quite early in the fœtal development, since the organ had become so well adjusted to these abnormal conditions that the circulation was fairly sustained.

The case is a unique one. Ectocardia is a name which is usually applied to a condition in which the heart is covered only by integument and subcutaneous tissues. Quite a number of cases have been recorded, but all of them have been associated with some congenital deficiency of the sternum or chest-wall.

Musser, J. H., and Swan, J. M.: Widal's Serum Diagnosis of Typhoid Fever. (*Journal of American Medical Association.* 1897. Vol. xxix., No. 7.)

The authors report examination made upon one hundred cases. Of these, thirty-five were suffering from undoubted typhoid; the reaction was present in all except four cases. Twenty-four observations were made on the blood of patients convalescent from typhoid fever. The reaction was present in eighteen cases, imperfect in four and absent in three. Seven examinations were made from patients who had typhoid at some previous time. Thirty-five examinations of blood from patients suffering from other diseases were also made. The reaction was absent in every case. From this evidence, which is fully tabulated, the author draws the following conclusions:

1. The age or sex of the patient does not make any difference in the character of the reactions.

2. The reaction may be obtained from the blood of cases of typhoid fever during the course of the disease, and may be found as early as the seventh day. In some cases it is absent at the seventh day and in other cases it is not fully developed until later in the course of the disease. In no case was it found earlier than the seventh day. In another case it was not perfectly developed on the fourteenth day.

3. The reaction disappears at a varying time after the cessation of the disease. The bacilli may fail to agglutinate as early as the thirty-eighth day. The reaction may be perfect as long as ten years.

4. The reaction can not be obtained from the blood taken from patients suffering from diseases other than typhoid fever, unless there has been a previous attack of the latter disease. Even if there has been a previous attack of typhoid fever the reactive property of the blood may have disappeared.

5. The test is valuable in diagnosing between typhoid fever and other diseases presenting a so-called "typhoid state." This is particularly the case in tuberculous diseases, in catarrhal fever, and in pneumonia.

6. From the observation of the one hundred cases it would seem that the reaction was accurate and that it could be relied on. It presents advantages over former clinical methods in doubtful cases.

Douglas, Charles: Infantile Stools and their Significance. (*The Physician and Surgeon.* 1897. Vol. xix., No. 10.)

After a careful consideration of the various forms of stools and their significance, the author reaches the following conclusions:

1. Green stools are never healthy stools.

2. They show imperfect digestion always.

3. In direct proportion with their presence is the damage and danger to the child.

4. These stools render children more susceptible to acute gastro-enteritis in hot weather.

5. The high infantile summer mortality follows children suffering from this colored stool.

6. Through unhealthy nutrition the blood is poisoned and the various tissues improperly nourished.

7. The excreting organs, particularly the kidneys and liver,

are frequently damaged by the extrordinary duties imposed on them in eliminating these poisonous results from the blood.

8 This continued irritation and innutrition favors the development of inherited diathesis and acquired cachexias.

9. No child is free from complications dangerous to life, or from developmental errors who suffers from frequently recurring green shaded stools, particularly the very liquid and foul smelling ones.

Root, Eliza H.: A Case of Nasal Obstruction in the Newborn. (*New York Medical Journal.* 1897. Vol. lxv. No. 19.)

The author reports the case of a child born after normal labor in which the baby was markedly cyanotic and was unable to nurse. It was found that the infant could not breathe through the nose, and the pharynx was red and congested. In the effort to breathe the uvula with the arches were drawn backward and the pillars of the fauces were so relaxed as to almost close the pharynx. The child died at the end of a week.

Post-mortem three or four hours after death: In the right nasal cavity the inferior and middle turbinated bodies were greatly enlarged and engorged with blood, resembling two rather small and well-filled leeches, lying one above the other, completely occluding the nasal passage. The superior turbinated body appeared normal. In the left nasal cavity the turbinated bodies were congested, but not so enlarged as to occlude, of themselves, the nasal passage.

As to treatment, palliative measures were fruitless, while the value of surgical interference upon such highly vascular tissue in so young a child could only be known after trial. As to the cause of this condition of the nares, the author gives no explanation.

Fuerst, L.: Influenza in Children. (*Medizinal Zeitung.* 1897. No. 78.)

Since the reappearance of grippe in 1889 our knowledge of the specific germ, the various forms and complications, as well as the estimation of its prognosis, has attained a higher standard. This at first generally believed harmless sickness, but later observed dangerous disease, has, in a similar manner, been carefully studied and improved. Experience has taught that during these epidemics more attention must be paid to the catarrhs of the respiratory tract so often complicating this disease, because we are at first unable to decide whether this complication is due to an infectious catarrh or to the beginning stage of influenza. From many sad experiences during the past six or seven years we deduct that these at first supposed slight catarrhs often develop into severe forms which end fatally within a few days from failure of immediate rest in bed and proper hygienic and dietetic treatment.

This period of invasion in children is, as a rule, gradual, as compared with the sudden onset in adults. The child becomes languid and cross; suffers from general malaise, loss of appetite, accompanied with coryza and a dry cough. Nausea and vomiting also occur. After a few days, sometimes even as late as the eighth or tenth day, we become aware that these symptoms were those of the incubation stage. Then an irregular fever with chilliness appears. To the cough, hoarseness and dyspnœa are added. The eyes become reddened and excessive lachrymation takes place. Sometimes convulsions and coma set in. Uncomplicated cases when they receive early attention are generally cured within four to six days. In these cases the convalescence is rapid. The extreme malaise so often noticed in adults, while not as a rule absent in children, lasts only a few days.

As to treatment the author says that he has observed a favorable influence exerted on the course of the disease by immediate internal medication. Formerly he used quinine and in the "nervous form" of the disease salophen, and in some cases salicylate of sodium, phenacetin, or lactophenin. In children nothing has given him such uniform and prompt results as salipyrin, whether used in the febrile-prodromal or initial stage of influenza; it being free from any evil after-effects. He agrees with Mosengeil Békees, A. Hennig, Müller-Breslau and others, in attributing an almost specific action to salipyrin in influenza of children. He does not attempt to say how far the individual components, salicylic acid and antipyrin, are accountable for the beneficial action of the drug, or whether it is due to the chemical combination of the two. It seems to act not only antipyretically and sedatively on the nervous system, but also antitoxically. The catarrhs remain moderate, but the unpleasant symptoms, fever, headache, general malaise are checked in their incipiency. The progressive tendency of influenza to extend to the bronchi and lungs also disappear.

To obtain good results, it is of prime importance, that salipyrin be given at once and in not too small doses. The author generally prescribes for small children (up to 5 years), 0.25; for older children (5 to 10 years), 0.5; for still older children (10 to 14 years), 1.0. It is given three times a day in hot tea.

Generally, after two days, it suffices to use it only twice a day, and with this I continue until three or four days after the beginning of convalescence. The child all the while being kept in bed.

Taylor, J. Gurney: A Case of Symptomatic Parotitis Occuring as a Compliation of Typhoid Pneumonia. (*Annals of Gygaecology and Pediatry.* 1897. Vol. x. No. 1.)

The author reports the occurrence of this unusual complication in a boy of eight years. On the seventeenth day of the disease he noticed a swelling occupying the region of the left parotid gland. It was pyriform in shape, the base downward, painful on pressure, and the skin was very tense and glazy; there was no redness or œdema, or any signs of active inflammation. There was decided pain on opening the jaws.

Two days later the right parotid became involved, and presented the same signs as left; there was a concomitant rise of temperature on both days on which the parotids became involved. This rise of temperature may have been in part due to the parotitis, but the lungs showed an extension of the pneumonia, other portions being freshly involved upon those days.

Upon the twentieth day, paronychia of both thumbs developed. After the seventeenth day the pneumonia symptoms and characteristic temperature predominated.

The present illness date back about one week, when he complained of pains in stomach and limbs, and being very chilly. There was no epistaxis, and his bowels had been regular.

As to the treatment the author says that he observed a favorable influence exerted on the course of the disease by immediate internal medication. Formerly he used quinine, and in the "nervous form" of the disease salophen, and in some cases salicylate of sodium, phenacetin, or lactophenin. In children nothing has given him such uniform and prompt results as salipyrin, whether used in the febrile-prodromal or initial stage of influenza; it being free from any evil after-effects. He agrees with Mosengeil Békes, A. Hennig, Müller-Breslau and others in attributing an almost specific action to salipyrin in influenza in children. He does not attempt to say how far the individual components, salicylic acid and antipyrin, are accountable for the beneficial action of the drug, or whether it is due to the chemical combination of the two. It seems to act not only antipyretically and sedatively on the nervous system, but also antitoxically. The catarrhs remain moderate, but the unpleasant symptoms, fever, headache, general malaise are checked in their incipiency. The progressive tendency of influenza to extend to the bronchi and lungs also disappear.

To obtain good results, it is of prime importance that salipyrin be given at once and not in too small doses. The author generally prescribes for small children (up to 5 years), 0.25; for older children (5 to 10 years), 0.5; for still older children (10 to 14 years), 1.0. It is to be given three times a day in hot tea.

Generally, after two days, it suffices to use it only twice a day, and with this I continue until three or four days after the beginning of the convalescence. The child all the while being kept in bed.

Fischer: Pathology of the Thymus Gland. (*Jahrbuch für Kinderheilkunde.* B. xliv., H. iii., iv.)

A boy five years of age had suffered from dyspnœa since an attack of whooping cough four years before. Three or four months before his death swellings appeared on both sides of the throat, which were diagnosticated as enlarged glands. Toward the end the dyspnœa became very urgent. The urine showed red blood corpuscles. Petchiæ developed in the skin. Tracheotomy was performed, but in spite of this the child died from suffocation.

The autopsy revealed extensive involvement of the lymphatic glands, enlarged tonsils, numerous lymph nodules in the mucous membrane of the throat, æsophagus, and trachea. There was an enormous enlargement of the spleen, enlargement of the pyus Pyer's petches and solitary follicles.

The thymus had been transferred into a large hard tumor filling in the entire anterior and middle mediastinal spaces. The microscopic examination showed the growth to be a malignant lymphoma (Hodgkin's disease).

Bresler: Infantile Progressive Paralysis. (*Jahrbuch für Kinderheilkunde.* B. xliii., H. ii., iii.)

The patient was a girl thirteen and one-half years of age. Several of her immediate family had suffered from nervous troubles. The girl was poorly developed and had had attacks of chorea minor. For two years she had not attended school on account of mental peculiarities. She was completely demented, could not read, sew, or knit. She refused food and took no interest in her surroundings.

Physical examination showed the left pupil to be dilated, with slow response to light. There was no paralysis, no tremor in walking, but the steps taken were short and uncertain. The facial expression was anxious and stupid. No attention was paid to questions asked.

After an interval of four months there was right sided facial paralysis, partial stupor, and many attacks of both tonic and clonic convulsions. Two months later death followed with symptoms of general cerebral paralysis.

Autopsy revealed—Thickening of the dura and œdema of arachnoid, external hydrocephalus with atrophy of the convolutions. The changes in the liver gave rise to the suspicion of hereditary syphilis.

Elener: Hydrocephalus and Congenital Syphilis. (*Jahrbuck f. Kinderheilkunde.* B. xliii., H. iv.)

Hydrocephalus and hereditary syphilis are the only diseases with the exception of rachitis, which may be considered truly congenital, or which commonly develop during the first months of life.

Hereditary syphilis has many things in common with the third stage of the acquired form. Following upon the acquired form we see affections which, while they cannot be positively attributed to the syphilis, are looked upon, and properly so, as being the result of the specific infections, *e. g.*, tabes dorsalis and progressive paralysis.

The author's paper is based upon observations made upon eighteen cases of hydrocephalus. Of these, three, or 16 per cent., had well marked congenital syphilis. He refers to the important symptom, the enlargement of the liver and spleen in congenital syphilis, and finds that among the remaining fifteen, 13½ per cent. presented this symptom. This, he believes, may give rise to the supposition that an attenuated virus might be responsible for the hydrocephalus. The researches further show that the apparently healthy mother of hydrocephalic children have aborted more frequently than those who have born healthy children.

The conclusions arrived at are as follows: Hydrocephalus occurs more frequently in syphilitic than in healthy children. The comparative frequency with which enlarged liver and spleen are associated with hydrocephalus points to more than a casual connection. Further, the evidence of syphilis in the mothers of hydrocephalic children, manifested in repeated abortion, explains the tendency which these subjects show.

Lewy: Acute Primary Myositis. (*Archives Kinderheilkunde.* B. xix. H. v., vi.)

Acute inflammatory affections of the muscles, other than trichinosis, have been but little studied, and but little is known about them. The author reports four cases of acute myositis occurring in adults.

The first case was that of a twenty-four year old girl, who, after a few indefinite prodromal symptoms, developed a swelling of the muscles, together with an eruption of the skin. The eruption disappeared and was followed by purpura, which lasted three months. The muscular swelling appeared in various portions of the body, and was very painful; a moderate degree of fever was present a greater part of the time. The swelling disappeared in a few months and was followed by a slight degree of atrophy of a degenerative character with contractions. Early in the disease there was ulceration of the gums. The entire duration of the disease was six months.

The second case was the mother of the foregoing patient, a fairly healthy woman, sixty-five years of age. The onset of the case was with fever, diarrhœa, vomiting and purpura. These symptoms were followed by painful swellings of the muscles of the legs. No other portion of the body was involved. The mucous membrane remained healthy. During the second month of the illness, vomiting and headache developed, and was followed by acute hemorrhagic nephritis. The disease lasted several months, the patient ultimately making a good recovery.

The third case was the seventy year old husband of the second patient. He became ill the same time as his wife. He had fever, and large purpuric areas developed on the legs. He was well in eight days.

The above cases, occurring in different members of one family, would make it appear that acute myositis is a disease of infective origin.

HYGIENE AND THERAPEUTICS.

Chapin, Henry D.: Treatment of Typhoid Fever in Children. (*Post-Graduate.* 1897. Vol. xii., No. 10.)

The first element of proper management is absolute rest in bed. One of the peculiarities of the fever in children, its frequent reoccurrence. The author has seen children not entirely free of fever for eight to twelve weeks, because they could not or would not be kept in the recumbent posture. In all cases of typhoid fever, the children should be put at once to bed and kept there until they have been free of fever for several days. This may be difficult when the temperature is not high and the signs of illness not marked, as both children and parents are apt to protest against the confinement. It will, however, nearly always insure a comparatively short duration of the fever and prevent the common recurrences so often noted in the walking cases. The rest and quiet will also do much to keep the bowel symptoms in abeyance. It is needless to add that a fluid diet should be insisted on. Cow's milk forms the standard article of diet in the typhoid of children and adults. From one to two quarts of milk may be given daily, and will maintain nutrition without additional food. The effect of large quantities of milk upon the digestive tract must, however, be watched. If digestive discomfort is complained of, or curdy masses of caseine or fat are noted in the stools, the milk must be properly diluted and the curds attenuated by the addition of lime-water, barley-water or some of the sparkling waters, such as vichy or seltzer. Occasionally a good effect will be attained by peptonizing the milk. Children are sometimes able to take large quantities of milk by administering it hot, and insist upon their sipping it very slowly. Koumyss, matzoon, or buttermilk may be relished as a change. A refreshing and nourishing drink is made by stirring the white of a fresh egg with a small glass of cool water, to which a few drops of whiskey or brandy have been added. Beef tea, mutton or chicken broth, expressed beef blood and clam broth may all be useful at times. It is important not to crowd the quantity of nourishment during the first ten days of the disease, as the fever will be aggravated if more is given than the patient can comfortably digest or assimilate.

Later in the disease the nourishment may be pushed a little more freely. It is very rarely necessary to employ alcoholic stimulation at any stage of the fever. In feeble children, if the heart's action becomes weak, whiskey may be given in such doses as the condition may indicate. If the temperature runs high, frequently touching points above 103°, recourse may be had to cooling applications. In babies and very young children, the temperature can be safely and comfortably reduced by thoroughly applying cold to the head. The best means of attaining this consists in the application of an ice poultice, made by mixing finely-cracked ice with flaxseed meal in a bag of thin oiled skin. This applied to the occiput and over the vertex has a cooling effect, not only upon the head, but on the rest of the body. Cool sponging with alcohol and water is a refreshing way of reducing temperature, to which, as a rule, the child offers no objection. The water may be about 70°, and one-quarter alcohol added. Sponging with this solution, at the same time employing gentle friction upon each part, will have a tonic effect upon the nervous system and improve the cutaneous circulation. A more marked reducing effect upon the temperature will be obtained by employing water at 60°, or even lower, and adding one-half alcohol. It is rarely necessary to resort to the tub in children, if the above measures are faithfully carried out.

With reference to the gastro-intestinal tract, we are sometimes called upon to treat constipation, sometimes diarrhœa, and nearly always faulty digestion. Constipation is seen in the majority of cases, and may be so obstinate as to call for treatment. During the first week, small doses of calomel, or some other unirritating laxative may be given, but after that time it is best not to depend upon remedies administered by the mouth. Hard, dry masses of fecal matter, due to the milk diet, sometimes collect in the lower bowel, when relief may be obtained by injection of warm soap suds and water. These must not be given frequently or in large amount for fear of exciting too active peristalsis. Diarrhœa, particularly of a profuse character, is not common in the typhoid of children. If the stools become too frequent, the salicylate or subnitrate of bismuth may be used. Bismuth in large doses is the least irritating and most effective anti-ferment that can be given. The stools must, of course, be disinfected. For the impaired digestion, an acid pepsin solution is indicated. If the bowels are costive, dilute muriatic acid will do well; if loose, dilute nitro-muriatic acid or aromatic sulphuric acid.

The brunt of the irritation produced by the disease may be borne by the bronchial mucous membrane, rather than the intestinal tract. In such cases we have a persistent dry cough. This is best relieved by small doses of codeine. Bronchitis is particularly frequent in young children with typhoid. In resuming general diet even greater caution is necessary in children than in adults.

Barbies and Derayer: Subcutaneous Injection of Salt Solution in Diarrhœa. (*Jahrbuch für Kinderheilkunde.* B. xliv., H. iii., iv.)

The observations were made on both sick and well infants, the object being to determine the physiological effects of a seven per cent. sterilized salt solution. From twenty to thirty grammes were injected at one time.

The injections were followed by a period of reaction lasting usually about seven hours. The temperature arose, the pulse increased in strength and volume, and the arterial fluxion also increased. All the functions of the body appeared to be stimulated. In collapse both respiration and circulation were favorably influenced. The temperature also became higher, the change being noticed about one-half hour after the injection.

The rise in the temperature varied from two to eight-tenths of a degree centigrade. At the end of five or six hours the temperature would again fall, but almost always remain from two to three-tenths higher than it was originally.

The pulse usually increased about twenty beats per minute, and in its further manifestations corresponded closely with the temperature.

The author believes the measure to be of service in cases of diarrhœa with low temperature and collapse, or when collapse is threatening.

Reichnack: Subcutaneous Injection of Serum in Summer Diarrhœa. (*Jahrbuch für Kinderheilkunde.* B. xliv., H. iii., iv.)

The indications for the injection of serum in diarrhœa are excessive loss of fluid from the intestines and inability to take anything by the stomach. It is a means of giving nourishment to the patient with stomach and intestines at rest.

The observations were made in Ranke's Clinic in Munich in fifteen patients. Sterilized serum from healthy cows and horses was used. The cases selected were injected on the second or third day of the illness. They were greatly reduced in weight. Some were partially moribund. The ages of the patients varied from fourteen days to nine months. From ten to twenty cubic centimeters were injected at one time. No unpleasant symptoms followed in any of the cases.

The beneficial effects were soon noticeable in an improvement in the general condition. In a few it was necessary to repeat the injections after twenty-four hours.

The amount of albumen contained in the twenty centimeters, according to Hoppe-Seyler, is one to five grains.

Four cases were fatal.

Patton, Joseph M.: Antipyretics in Acute Endocarditis. (*Chicago Clinical Review.* 1897. No. xii.)

Of the antipyretics which it may be advisable to use to control the rise in temperature in cases in which the fever is severe, the author believes that antipyrin is too dangerous. Acetanilid and phenacetin are somewhat safer, especially the latter, when given in small doses of three grains in connection with quinine. There is less depression and perspiration, however, following the use of lactophenin than phenacetin, in conditions of this kind, and he regards it as preferable to other remedies of this class under these circumstances, either alone or in connection with quinine. Five to seven grain capsules may be given every two hours, as necessary.

SURGERY.

Winkler: Papilloma of the Larynx in a Two and One-half Year Old Child. (*Jahrbuch für Kinderheilkunde,* B. xliii., H. ii., iii.)

The patient was brought to the author suffering with a high degree of laryngeal stenosis. Laryngoscopic examination only revealed the epiglottis. The larynx was filled with a reddish gray berry-formed tumor. So large was the growth that it was hard to understand how there could be a sufficient passage of air to sustain life. During the first year of life the child had suffered from attacks of suffocation accompanied by a hoarse barking cough. These attacks had increased greatly in severity during the past six months. The child could say "papa" and "mamma." No other attempt at talking had been successful.

With the exception of the growth the patient was well. The family history was negative. Three days after the first examination the child was brought to the hospital markedly cyanosed. Tracheotomy was at once performed with relief of the immediate symptoms. There was slight bronchitis, but no fever. Twelve days later an endo-laryngeal removal of the tumor was attempted and was successful in that the child could breathe, though with some difficulty, through the larynx.

A few weeks later examination showed the anterior portion of the cords covered with a mulberry-like growth which nearly filled the larynx.

The tumor was again removed, the parts curetted, and the child did well for a short time. In six weeks the growth had reappeared and involved the epiglottis in addition to the parts previously attacked. Again relief followed the operation and for four weeks the child was fairly comfortable. At the end of this time the symptoms of cough and dyspnœa again appeared and more of the growth was removed. Relief followed for a few days when the patient was suddenly taken with convulsions and died. The autopsy showed that death had been due to hemorrhage. The bronchi of both lungs were filled with blood, the source of which could not be discovered.

Pitts, Bernard: Seven Consecutive Cases of Intussusception in Infants Treated by Abdominal Section With Six Recoveries. (*Lancet*. 1897. No. 3850).

The history of these cases is given in detail, and presents matters of great interest to the surgeon. Children under one year of age are commonly supposed to be unfavorable subjects for abdominal exploration. With proper precautions, however, abdominal section may be performed without great risk from shock, but the temperature of the body must be maintained by wrapping the extremities in cotton wool, operating on a hot-water cushion, and taking care that the manipulations are carried out quickly and with great gentleness. The seven cases may be divided into two chronic and five acute. The average age of the acute cases was nine and one-fifth months. The chronic cases are of special interest, since it was necessary to incise the colon and remove irreducible bowel in each instance.

The author thus summarizes his opinions:

1. In cases of recent acute intussusception distension of the bowel by air or water combined with gentle external manipulation may be tried under an anæsthetic. The surgeon should,

however, be *present* and prepared to at once open the abdomen if a satisfactory result is not quickly obtained. In many cases the effect of such inflation is to reduce the main mass of the tumor, but to leave an irreducible portion in the right iliac and lumbar regions. This amount of success aids the subsequent operation and allows the tumor to be easily delivered through a smaller incision and with less manipulation. Supposing that inflation has apparently been successful, the child should be carefully watched, and with evidence of continued trouble abdominal section should be resorted to and no further inflation tried.

2. An exploratory operation should be undertaken without preliminary inflation, when from the severity of the symptoms or the chronicity of the case there is reason to believe that such inflation would be dangerous or unlikely to succeed. It must always be remembered that the time taken up by inflation adds considerably to the shock.

3. The medium incision is most suitable in the majority of cases, but when the tumor is in the cæcal region a limited incision in the right semilunar line may be found most convenient. For the reduction of the final portion of an intussusception the tumor should be brought outside the wound so that the operator may clearly see the condition of the bowel and make sure that the reduction is complete. Thickening about the ileo-cæcal valve may be easily mistaken for an incomplete reduction. When in doubt an incision may safely be made into the colon, and the parts examined from within the bowel. An incomplete reduction will certainly lead to further trouble. In some of the supposed cases of spontaneous cure, or cure by inflation or manipulation, it is highly probable that complete reduction is not effected, and the chances of recurring symptoms are therefore greater than after careful operation.

4. In none of the cases reported did it seem desirable after reduction to attempt any fixation of the bowel—such as by suture of the mesentery—as a security against recurrence. Such a procedure seemed contra-indicated, since it would add to the length of the operation and must be most uncertain as to the effect produced. All the children were given small doses of tincture of opium and kept under constant medical supervision for a considerable time after convalescence from the immediate condition.

5. When reduction is found impossible, a resection inside the colon would seem to afford the best chance. The junction between large and small bowel must be made secure before any part is cut away. When gangrene is present the condition in young children is almost hopeless. Complete resection and end-to-end union, whether by Murphy's button or suture, so far has been practically without success. Perhaps rapid resection, with lateral implantation of the small bowel into a healthy portion of the colon, and bringing the cut end of the large bowel to the surface as a temporary vent for the escape of flatus, would be the quickest and safest method to adopt. Safely, however, as infants stands a short operation, a prolonged one under such circumstances seems almost beyond their power.

Moynihan, B. G. A.: A Case of Strangulated Hernia in a Child Aged Twenty-two Days: Successful Operation. (*The Lancet.* 1897. No. 3865).

The patient was a male, aged twenty-two days. Since birth a rupture had been noticed on the right side. About twenty-four hours before he was seen the rupture came down when the child was crying. The mother, on examining it, found that the size of the swelling was larger than she had previously noticed it, and her attempts at reduction failed. Within an hour the child had vomited and had continued to do so at intervals which were becoming gradually curtailed. For about twelve hours no urine had passed. On examination a tense inguinal hernia on the right side was found, of approximately the size of a billiard ball. Attempts were made to reduce the hernia without, and with, anæsthesia from chloroform, but were unsuccessful. The author then proceeded to operate. The sac contained a little fluid, and about ten or twelve inches of distended and discolored small intestine. The point of strangulation was at the neck of the sac. The rings were stretched with the finger and the gut returned, the operation being completed by performing a radical cure by Ball's method and by fashioning a tunica vaginalis from the lower part of the sac. A dressing of collodion and gauze was applied. During the operation the child passed urine. The after history was uneventful and recovery was speedy. Up to the present the hernia has not returned; no truss is worn.

Bokay: Displacement of the Membrane and Tube Plugging in Intubation. (*Arch. für Kinderheilkunde.* B. xxi., H. iv.)

Among 498 cases of intubation which the author collected from the literature of the subject, in eighteen, or three and one-half per cent., the membrane was displaced downwards during the operation. This rendered the extraction of the tube and the operation of treachæotomy necessary. The small proportion of the cases in which the accident occurs is accounted for in the rounded end of the tube.

Cuopf: Indications for Trachætomy. (*Archives für Kinderheilkunde.* B. xxi., H. iv.)

In stenosis with interference of expiration, more air remains in the lungs than normal, resulting in their distension and pressing the diaphragm downward. The extent of the distention may be learned by percussion, and the indication for treachæotomy made plain. The author's observations cover one hundred and twenty cases of laryngeal stenosis in all of which the position of the diaphragm was definitely determined. Among this number, in one hundred and twelve the diaphragm was found to occupy a position corresponding to the twelfth rib. After trachæotomy, or intubation, distention was relieved.

Burling: The Mortality of the Various Operations for the Removal of Vesical Calculus in Children. (*British Medical Journal. Ref. Jahrbuch für Kinderheilkunde.* B. xlv., H. ii., iii.)

The cases referred to were in a small part the author's own, the greater number being the reports of various English hospitals. Only children under ten years of age are considered in the following:

Litholapaxia, 44 cases—one death.
Lithotomia supra pubica, 56 cases—ten deaths.
Lithotomia mediana, 16 cases—one death.
Lithotomia lateralis, 50 cases—two deaths.

Under the causes of death, the author includes shock, nephritis, peritonitis, and septicæmia. The statistics would show us that the best results are to be expected from litholapaxia and lithotomia lateralis. The supra-pubic operation gave the largest mortality.

Stoner, A. P.: Congenital Occlusion of the Rectum and Anus; A Case Successfully Operated Upon Through the Perineum. (*Medical News.* 1897. Vol. lxxi. No. 7.)

The rarity of congenital malformations of the rectum and anus renders a report of a case both interesting and profitable. In 16,654 births at the Dublin Lying-in Hospital, Collins observed but one case, and Zöhrer of Vienna found but two instances in

50,000 births. Wharton places the average number of these malformations as about 1 case in 10,000.

On June 10, 1896, at 7 A.M., Mrs. L. gave birth to her first child, a male, weighing 7½ pounds. After the child was given to the nurse it was noticed that the right ear was rudimentary, it being about one-third the size of the left. This led to a further examination, which resulted in the discovery that there was a total absence of the anal orifice. There was nothing whatever to mark the original intention of Nature—no crease, not even a raphé dividing the nates, the whole buttock being one firm, smooth, rounded mass, giving the impression of solid muscular tissue beneath the skin.

Operation was performed by deep dissection through the perineum. After considerable manipulation the intestine finally was brought the surface. While the forceps was still in position an incision one-half an inch in length was made into the bowel, and a very large amount of meconium evacuated.

The edges of the incision in the bowel were then stitched to the integument, four fine silk sutures being used on each side. The forceps being removed, the incision was carried forward one-quarter of an inch further, making the bowel incision three-quarters of an inch in length. This likewise was stitched to the integument, thus making six sutures on each side. The perineal wound was closed by deep and superficial sutures and sealed with iodoform-collodion. Iodoform gauze and plain cotton completed the dressing.

The child rallied nicely. Time of operation, fifty-five minutes, much time being lost in waiting for the meconium to escape. No hemorrhage was encountered during the operation, not an artery having been severed.

The child made an excellent recovery and had full control over the sphincter, there being little or no incontinence five or six weeks after the operation.

The Choice of Operation of Hernia of Infants.—Dr. Coley in the *Medical News* speaks as follows of Bassini's method: "The results in my hands following Bassini's operation have been so extremely satisfactory that I confess I may be somewhat prejudiced in its favor, and hence unconsciously do injustice to some of the other methods. When once the principles of Bassini's method are clearly understood and the surgeon has become familiar with the technic, the operation becomes a very simple one, and may be easily performed within from fifteen to twenty minutes. In employing this method in children greater care must be exercised than in adults in order to avoid damaging the delicate structures of the cord and sac. As yet, I have never injured the cord either in children or adults. The necessity of transplanting the cord in operations for the cure of hernia cannot yet be regarded as definitely settled, though no surgeon has been able to show as brilliant results by any other method."

American Pediatric Society.

TENTH ANNUAL MEETING.

Cincinnati, June 1, 2, and 3.

OFFICERS.

President,	L. Emmett Holt, M.D.
First Vice-President,	Henry Koplik, M.D.
Second Vice-President,	Charles G. Jennings, M.D.
Secretary,	Samuel S. Adams, M.D.
Treasurer,	Frederick A. Packard, M.D.
Recorder and Editor,	Floyd M. Crandall, M.D.

COUNCIL.

Wm. D. Booker, *Chairman.*

T. M. Rotch,
J. P. Crozer Griffith,
B. K. Rachford,
A. D. Blackader,
Wm. Osler,
C. P. Putnam.

The next meeting of the Society is but a few weeks off and the programme is but partially completed. Members who propose to read papers will please send their titles at once to Dr. W. D. Booker, 853 Park Avenue, Baltimore.

The report of the Collective Investigation Committee will be based upon over two hundred carefully reported cases of infantile scurvy and gives promise of being a paper of great scientific value.

COMMITTEE

ON THE COLLECTIVE INVESTIGATION OF INFANTILE SCURVY.

J. P. Crozer Griffith, M.D., *Chairman,* 123 S. 18th St., Phila.
William D. Booker, M.D., 853 Park Ave., Baltimore.
Charles G. Jennings, M.D., 457 Jefferson Ave., Detroit.
Augustus Caillé, 753 Madison Ave., New York City.
John Lovett Morse, M.D., 317 Marlborough St., Boston.

American Medical Association.

SECTION ON PEDIATRICS.

Denver, June 10, 1898.

President,
J. P. Crozer Griffith, M.D., Philadelphia.

Secretary,
Edwin Rosenthal, M.D., Philadelphia.

PRELIMINARY PROGRAMME.

1 Address of Chairman, J. P. Crozer Griffith, Philadelphia.
2 The Influence of Dystocia in the Causation of Infantile Diseases, - Joseph E. Allen, Augusta, Ga.
3 Thyroid Treatment in Myœdema and Cretinism in Young Children, Frederic Bierhoff, New York.
4 Blood Examination in Pediatric Practice, S. E. Woody, Louisville, Ky.
5 Of the Value of Eye Symptoms in Meningitis, A. Edward Davis, New York.
6 Additional Researches on the Poisons Found in Milk and Milk Products, Victor C. Vaughan, Ann Arbor, Mich.
7 Tubercular Arthritis in Children, - John Ridlon, Chicago.
8 Some Skin Eruptions which are Confounded with Infantile Syphilis, - Charles W. Allen, New York.
9 Preventitive Treatment of Tuberculosis in Children with Hereditary Predisposition, John A. Robinson, Chicago.
10 Fracture of the Clavicle in Children, A. Ernest Callant, New York.
11 Discussion of above by Charles Power, Denver.
12 Whooping Cough, - - R. B. Gilbert, Louisville.
13 Eczema in Four Branches of a Family, Ella M. Patton, Quincy, Ill.
14 Some Odd Results in the Treatment of Diphtheria with Antitoxin, - Henry A. Strecker, Philadelphia.
15 Influenza in Children, - James J. Concannon, New York.

16 The Treatment of Congenital Syphilis,
CHARLES S. SHAW, Pittsburgh.

17 Mechanical Management of Difficult Defecation in Infants, - - THOMAS MARTIN, Cleveland.

18 Subnormal Temperature in Infectious Diseases,
HENRY H. FROUND, Philadelphia.

19 The Influence of the Climate of Colorado on Diseases of Children,
C. F. GARDINER, Colorado Springs.

20 Tetany in a Child Sixteen Months Old,
EDWARD H. SMALL, Pittsburgh.

21 Tetany in Infancy, - - J. LOVETT MORSE, Boston.

22 Pneumonia-Laborde Treatment of Artificial Respiration, - - A. E. ROUSSEL, Philadelphia.

23 Multiple Neuritis in Young Children,
ANNIE S. DANIEL, New York.

24 The Treatment of Tuberculosis in Children in New York City, - - LOUIS FISCHER, New York.

25 The Treatment of Congenital Talipes,
HARRIET E. GARRISON, Dixon, Ill.

26 The Debility of Adolescence,
LOUIS FAUGERES BISHOP, New York.

27 Discussion of Intubation and Diphtheria,
S. SOLIS COHEN, Philadelphia.

28 The Diagnostic Value of Tuberculin,
DILLON BROWN, New York.

29 Some New Facts Concerning Scarlet Fever,
JOSEPH W. STICKLER, Orange, N. J.

30 Formative Nutrition, - - H. W. SCAIFE, Chicago.

31 Tuberculosis of the Iris,
A. G. THOMPSON and SAMUEL GITTELSON, Philadelphia.

32 Tubercular Peritonitis, - F. F. LAWRENCE, Columbus, Ohio.

33 Cyclic Vomiting in Children, CHARLES G. JENNINGS, Detroit.

34 Auto-Infection vs. Typhoid Fever as Seen in Young Children, - W. C. HOLLOPETER, Philadelphia.

35 Diphtheria and Tubercular Diseases,
EDWIN KLEBS, Chicago.

36 One Hundred Cases of Laryngeal Diphtheria; Forty-five Intubations, - ROSA ENGELMANN, Chicago.

37 Management of Infectious Diseases in Children,
I. N. LOVE, St. Louis.

38 Is the Use of the Term "Typhoid-Pneumonia" Justifiable? - HENRY E. TULEY, Louisville, Ky.

39 Neurotic Purpura, FRANCIS A. THOMPSON, Milwaukee, Wis.

40 Mortality in Children Due to Neglect, for Which the Physician is Responsible, W. A. DIXON, Ripley, Ohio

41 Dentition, - - - JOSEPH CLEMENTS, Kansas City.

42 Observations in Diphtheria, - H. D. JEROWITZ, Kansas City.

43 Demonstration of the Method of Auscultation and Percussion for Heart and Lungs, HERBERT B. WHITNEY, Denver.

44 Discussion of Dr. Whitney's Method by Drs. J. N. Hall, John H. Musser, James C. Wilson, J. P. Crozer Griffith.

45 What Influence do Stimulants and Narcotics Exert on the Development of a child, E. STUVER, Rawlins, Wyo.

46 Milk Food in Infants, - EDWIN ROSENTHAL, Philadelphia.

Papers and discussions have been promised by Drs. W. H. Wells, Edward L. Davis, Janet Gunn, A. K. Bond, S. S. Adams, J. Madison Taylor, H. M. McClanahan, C. S. Merriman, A. H. P. Leuf, Harold N. Moyer, George C. Potter, Edmund J. Roger, Martin W. Barr, J. M. C. Carter, C. D. Spivak, W. W. Gray, E. C. Davis, D. A. Hodghead, Avis E. Smith, A. C. Cotton, Clinton Scott, W. S. Christopher, J. A. Larrabee.

ARCHIVES OF PEDIATRICS.

VOL. XV.] MAY, 1898. [No. 5.

Original Communications.

AUTO-INTOXICATION, WITH THE REPORT OF A CASE IN AN INFANT OF FIFTEEN MONTHS.*

BY SAMUEL M'C. HAMILL, M.D.
Visiting physician to St. Christopher's Hospital for Children,
Philadelphia.

Auto-intoxication is a term used to describe a condition of poisoning of the human body by toxic substances formed within the organism, and altogether independent of extrinsic causes.

The term must be used within certain limitations. The symptoms which are produced by defective elimination on the part of the emunctory organs of the poisonous substances which are constantly being developed within our bodies in the process of cell metabolism, and the symptoms arising from the formation of these substances in excess of the excretory powers, and those arising from the formation and absorption of intermediary products, the result of defective metabolism, should be included under this heading. So also should the symptoms produced by interference with or arrest of function of those organs entrusted with the destruction of the toxic substances formed in the gastro-intestinal tract and in the process of cell metabolism.

The fact that the various fermentative processes occurring in the gastro-intestinal tract may be to some extent dependent upon the ingested foods, has led to some difference of opinion regarding the auto-genetic origin of those symptoms arising from the absorption of the toxic substances produced there. It seems reasonable to include them among the auto-intoxications for the following reasons: First, the food is an essential to the proper performance of the body functions; second, the gastro-intestinal organisms, which are responsible for these fermentative processes, feed upon the substances secreted by the tissues as well as upon those brought into the body from without; and third, it is probable that under certain conditions the waste products excreted by the gastro-intestinal mucous membrane become toxic to the individual through re-absorption. It would therefore be manifestly unfair to exclude all cases of poisoning of intestinal origin on the ground that they are dependent, for their development, upon the presence of food stuffs.

---

* Read before the Philadelphia Pediatric Society, February 8, 1898.

The diseases dependent upon the pathogenic bacteria should be excluded. It is true that the poisonous products of these organisms are generated within the body, but the organisms themselves, the active factors, are introduced from without.

The chances of self-infection, it is thus readily seen, are many. Sir William Aitken has eloquently said, "Our organism is constantly dying; and strange as the paradox may seem, we cannot live unless it does to die. How precarious, therefore, is the condition we call health; how by the simple accumulation of cadaveric material, disease may manifest itself; how scientifically and literally do the truths stand out that 'in the midst of life we are in the midst of death' and that 'as we begin to live, so we begin to die.'" Under normal conditions we are fortunately enabled to dispose of the poisons which constantly threaten us. The poisonous products of the changes occurring within the cell, as well as those of intestinal origin, which may have escaped the destructive power of the liver, are eliminated by the kidneys, skin, lungs, and gastro-intestinal mucous membranes.

While the kidneys have been looked upon as the most important of all the organs of excretion, it is probable that this function of the gastro-intestinal mucous membrane has not been fully appreciated. We may have unwittingly depended upon the intestines to the utmost of their capacity, but it is questionable if we have consciously recognized their full value as organs of excretion. Maragliano has rightly suggested that it is not so much what is thrown out of these mucous membranes, but what they fail to throw out, that gives rise to troublesome symptoms. Charrin has shown that certain of the products of cell metabolism are thrown off by the mucous membranes of the ileum, cecum, and colon. Binet has proven that some metals and certain toxic substances injected subcutaneously are eliminated by the intestine, and Charrin and Roger developed enteric symptoms by the subcutaneous injection of the toxine of pus.

Fermi and Casciani have experimentally confirmed this doctrine of intestinal excretion. They rendered some cats constipated by the administration of bismuth and with these took some normal cats. Into both sets they injected subcutaneously the toxine of dysentery. The constipated cats died after from forty-eight to seventy-two hours and the normal cats after from five to six days. The mucous membranes of the constipated cats were pale, while those of the others were much reddened, especially in the region of the small intestine. They explain this difference on the ground that in the healthy cat the poison found an outlet through the intestinal mucous membrane, which was not the case with the constipated cats. It would seem probable, therefore, that in cases of intestinal derangement in which there is diminished peristalsis and diminished activity on the part of the intestinal mucous membrane, that there would result a decided diminution in the amount of intestinal excretion, and in the light of these experiments, a consequent retention of a very large proportion of poisonous substances. It is not at all unreasonable in this connection to consider the possibility of a selective excretive tendency on the part of the various emunctory organs; in other words, that it may be the function of the intestinal mucous membrane, for instance, to dispose of poisonous substances which are incapable of disposition by either the kidneys, skin, or lungs.

The poisons constantly present in the gastro-intestinal tract are in large part eliminated by the bowel. Some of these, however, are disposed of in other ways. Stich was inclined to believe that because he could induce poisoning by introducing the intestinal contents of one healthy animal into the stomach or intestine of another healthy animal, that each individual was capable of neutralizing, modifying or destroying the toxic substances which he himself formed. Bouchard suggests "that the toxic substances coming from the intestinal canal are neutralized in the blood by the white globules."

Fermi and Casciani have shown also that the intestines possess a *protective influence.* They produced symptoms of poisoning by injecting certain toxic bodies into the veins, while they failed to produce symptoms from injecting similar bodies into the intestinal tract. Fermi and Vincenyi have shown also that the toxic products of the bacillus pyocyanus and the poison of tetanus are destroyed in the intestines, and it has been proven that the toxines of diphtheria, some snake poisons, and certain alkaloids are not absorbed from the intestinal tract.

The destruction on the part of the liver of those poisons which reach the portal circulation is probably our chief source of protection against poisoning from the gastro-intestinal tract. This function of the liver has been definitely determined. Thus Heeger injected into the portal vein some blood containing a definite amount of alkaloids. He was able to recover from the blood coming from the liver only from one-fourth to one-half the quantity injected. Schiff injected the same quantity of nicotine before and after having ligated the portal vein. In the first instance the dose was non-toxic; in the second, toxic. He also prepared an infusion of nicotine with a known quantity of fresh liver. He injected this mixture into an animal. The animal was not killed. The same amount of nicotine, however, with a like amount of fresh kidney or muscular tissue, proved fatal.

We know comparatively little of the nature of these self-formed poisons. There have been some cases of sulphuretted hydrogen poisoning reported, notably the case of Senator, which were doubtless of auto-genetic origin.

Some recent work in Gautier's laboratory has demonstrated that the peptones and albumoses, when properly purified, are absolutely non-toxic, and that the toxic properties, which have heretofore been accorded them, are dependent upon certain by-products which have not as yet been isolated.

It is therefore evident that these substances, even if they should be absorbed during the process of digestion, are absolutely incapable of giving rise to poisonous symptoms and cannot be considered, as was formerly thought, causes of self-intoxication.

B. K. Rachford has isolated from the urine of a large number of cases of migraine, migranous epilepsy, gastric neurosis, asthma, and certain other conditions, excessive quantities of paraxanthin, heteroxanthin, and certain other alloxuric bodies. These substances he has shown to be present, save in the merest trace, only at the time of the paroxysms. By injecting paraxanthin, probably the most poisonous of these bodies, into mice, he has developed symptoms akin to those seen in the patient from whom these bodies have been derived. While the presence of these bodies, probably in large part, explains the occurrence of migranous symptoms, it is not improbable that there are other, as yet undiscovered, factors, acting in conjunction with them. It is certainly true that cases of undoubted migraine do occur in which no such substances are to be recovered from the urine. I have knowledge of two, as yet unreported, cases, in which careful, complete chemical examinations were attended with entirely negative results. Not only was there no excess of leukomaines discovered in the urine, but no abnormal ingredients. This fact is mentioned merely as a warning against the too ready acceptance of the above results as an explanation of the etiology of all cases of so-called migraine.

Before departing from the subject of leukomaines, I desire to refer to the unjustifiable manner in which this term has been applied. The literature teems with reported cases of leukomaine poisoning. In the vast majority of instances, no specific body has been isolated in the urine, and in many cases there has been no attempt at a chemical examination, the diagnosis resting upon purely symptomatic evidence. The term should be applied only to those cases in which leukomaines have been isolated from the urine and proven experimentally to produce symptoms such as those existing in the cases from which they have been obtained. The true leukomaines originate only in the metabolism of the cell, and consequently leukomaine poisoning cannot be of intestinal origin.

According to the definition which has been given, ptomaine poisoning cannot be considered among the auto-intoxications. The present accepted idea of ptomaines is that they are members of a certain group of products belonging to the amine series formed by the disintegration of nitrogenous organic molecules. Although they can be produced by chemical procedures, in pathological processes, they are always of bacterial origin, but are not, as must be well understood, the specific toxines of bacteria, which are proteids.

Since, therefore, they are pathologically dependent upon bacteria for their formation, and since it has been shown by the experiments of Udranszky and Baumann that the true ptomaines are never formed by the bacteria which cause the usual putrefactive changes in the alimentary canal, it is distinctly evident that the application of the term ptomaine poisoning to cases of auto-intoxication is absolutely unjustifiable. As a matter of fact, ptomaines do not bear the close relationship to the etiology of disease that they were once thought to. More recent researches have shown that the number of diseases which are solely dependent upon poisoning by ptomaines is very small indeed, and the number of ptomaines which have been isolated from the human excretions in disease are very few, consequently the application of the term must be very limited.

A study of the symptomology of auto-intoxication is of course not to be considered. The symptoms will be dependent upon the nature of the poison and the number of toxic substances capable of development within the human body, is probably very great. One would be as much justified in attempting to construct a specific symptomology for infection in general.

The work that is assigned to us, at the present day, has not to do so much with the study of the symptoms induced by these self-formed poisons, as with the study of the poisons responsible for these symptoms. The vague or unknown etiology of many diseases will probably be cleared up through future developments in this direction.

The following case contributes nothing to our knowledge of the etiology of these conditions. It occurred in my practice several years ago, and is communicated because it proved a very interesting and perplexing case, and more especially because it serves as an excellent text for the discussion of the subject under consideration. Its etiology was never definitely determined.

It is distinctly a border-line case; that is, it may or may not be a case of auto-intoxication:

P. R., male, aged fifteen months. Family history. Both parents decidedly lithemic. An infant brother died after a brief illness from paralysis of the muscles of deglutition, probably diphtheretic in origin. One sister a few years older is living and well. The child has had no previous serious illness, but has been more or less constipated.

On the night of the 20th of June, he developed what seemed to be an attack of acute gastro-enteritis. For a number of evenings preceding this attack, he had been fretful and irritable, a condition which his mother attributed to a course of discipline which was being applied at the hour of retiring. In the afternoon and evening of the night in which the illness began the fretfulness was more marked. Until midnight, however, his rest was moderately quiet. Shortly after this hour he awakened and vomited profusely, repeating the act several times between this and 3 A.M. He had four or five dark, watery, offensive stools containing undigested matter, the movements being attended by severe griping pains. He was given a dose of paregoric, after which he fell asleep and rested quietly until morning. I was called to see him at 10 A.M. the following day. At this time he was irritable when disturbed, disinclined to amuse himself or to be amused. His tongue was heavily coated with a grayish white fur, his cheeks flushed, his skin dry, his abdomen soft and not distended. There was no pain nor tenderness. The axiliary temperature was 100° F. The heart's action was weak and rapid. The symptoms seemed to point clearly to a diagnosis of acute gastro-enteritis for which, however, no cause could be discovered.

The child was seen on the following day at 8 P.M. The condition was unimproved. He had had one large semi-solid, offensive bowel movement during the previous night. There had been no recurrence of the vomiting. In the morning he seemed some brighter but grew listless and drowsy in the after part of the day. He slept a great deal, and while he was readily aroused, soon dropped off to sleep again. He had not voided urine for about eight hours. The bladder, however, contained some urine, which was passed two hours later. The tongue was much cleaner. The axiliary temperature was 100° F., and the pulse 125 per minute and of small volume.

By the morning of the 23d, the tongue had cleaned very much. The temperature was normal, the skin relaxed and moist. The child had wet several napkins during the night and there had been some pain preceding urination. The heart sounds were weaker and more rapid. The somolence persisted. A small quantity of urine, two fluid drachms, was collected. It was amber in color, acid in reaction, contained no albumin nor sugar. During the 24th, the drowsiness was more marked. The child passed one period of eight hours without voiding urine and the quantity for the day was very small. About 10:30 P.M. he had a large unformed bowel movement and at the same time voided some urine.

He was seen again twelve hours later, at which time it was discovered that no urine had been voided in the interim, and that the bladder was still empty. The skin was relaxed and moist. The breath and moisture from the skin had a decided ammoniacal odor. The drowsiness had increased. The heart sounds were feeble, clear and regular and 120 to the minute. The temperature was normal and the tongue had cleaned completely.

A diuretic was ordered, and four hours later, at 2 P.M., the drowsiness having increased, no urine having been voided, the bladder still empty, and the ammoniacal odor very marked, the child was placed in a hot pack. Profuse sweating began promptly and continued sometime after the removal of the pack at the end of an hour. The child was seen again at 5 P.M. The somnolence was not in the least relieved. At 9 P.M. the condition was unchanged. The child was aroused with great difficulty, to at once drop off to sleep again. At about 9:40 P.M., certainly not more than fifteen minutes after fruitless efforts to thoroughly arouse him had been made, he opened his eyes. A few minutes later sat up in his crib and asked for his bottle. During the half hour occupied in the preparation of the food, he amused himself with some toys. When the bottle was given him, he emptied it entirely of its contents and dropped off to sleep again. He was readily wakened for his nourishment during the night.

At 5 A.M., about thirty-two hours since he had last voided urine, his bladder was found to contain considerable urine, which after the application of some hot clothes to the hypogastrium, was voided and collected. Three ounces were obtained. It was pale amber in color, of acid reaction, with a specific gravity of 1012.

The chemical and microscopic examinations were entirely negative. During the rest of the day, the child voided large quantities of urine at frequent intervals. He was bright and cheerful, and aside from a depressed heart action, which persisted for several weeks, all bad symptoms had disappeared.

This attack in the beginning was apparently an ordinary acute gastro-intestinal catarrh, and I expected that within twenty-four hours the child's condition would be normal. The depression which developed, its persistent increase, the diminishing urinary flow with its eventual suppression, led to the suspicion of some inflammatory condition of the kidneys. The subsequent history of the case, namely, the recovery with the voidance of urine free from albumin, sugar and casts, with a somewhat lowered specific gravity, excluded the possibility of any primary renal condition, and led to the hypothesis of suppression of urine dependent upon some form of intoxication. The nature of this intoxication was the question of interest. Was it dependent upon some toxic substance introduced in the food, upon some one of the pathogenic micro-organisms, or upon some poison formed within the body? That it was not dependent upon the foremost of these seems evident, from the fact that there had been no change in the ordinary diet of the child, and the foods of which he had partaken had been indulged in by another child in the family. The only micro-organismal infection suggested was influenza. This condition was not very prevalent at the time and there were no cases in the family either before or after this illness. On the other hand, the apparently ordinary acute gastro-intestinal attack, followed by gradually increasing symptoms of poisoning, suggested that as a result of the changed conditions in the intestinal tract, there had developed an abnormal amount of toxic substances, which, being absorbed, had given rise to the described symptoms. It would seem probable, therefore, that the case was a true auto-intoxication, dependent upon the absorption of some toxic substance from the gastro-intestinal tract.

1822 SPRUCE STREET.

Obstruction of the Lachrymal Duct in New-born Children.—Landolt (*Annales de Gynéc. et d'Obstét.*) finds that this condition is not rare, and is often overlooked till much harm is done. The affection should be inspected whenever there appears to be conjunctivitis in one eye only a day or two after birth. The conjunctiva itself is not infrequently cured, so to speak, by appropriate lotions. The obstetrician, mistaking a complication or result for a primary disease, finds to his surprise that the eye continues to water, the lids becoming glued together, and a drop of pus often exudes from the inner canthus. This condition is yet more alarming in certain cases where no conjunctivitis has been observed. It looks like the beginning of purulent ophthalmia. Landolt lays down as a rule that obstinate unilateral lachrymation in a new-born child usually signifies obstruction of the tear duct. As an ophthalmic surgeon he advocates sounding of the duct with a fine probe; on no account should the canaliculus be slit up. Afterwards weak antiseptic lotions must be injected into the duct by means of an Anel's syringe; the infant must be turned on its face directly afterwards lest any of the lotion be swallowed.—*British Medical Journal.*

ACUTE LEUCÆMIA IN CHILDHOOD.

BY JOHN LOVETT MORSE, A.M., M.D.,

Physician to Out Patients at the City Hospital and at the Infants'
Hospital, Boston; Assistant in Clinical Medicine,
Harvard Medical School.

Acute leucæmia, while a rare disease in adult life, is still more so in childhood. Classing as acute only those cases in which the duration of the disease is not over nine weeks, I have been able to find, in a pretty careful review of the literature of the subject, but seven cases reported. In view of these facts, therefore, even a single case seems worthy of detailed description. My own case is as follows:

Mary K., aged three, was seen by me but once. Her mother had died of pneumonia a year previously. Her father was well. There was no tubercular or syphilitic history. She was healthy at birth. She was nursed for a year, and then fed from the table. She was always subject to diarrhœa, but had been otherwise well. For family reasons she had been put out to board six weeks before. At that time she was well. She was found the day before in her present condition. No history could be obtained except that six days previously red spots had come out on the skin, and the mouth had become sore. She had also vomited blood, and had passed some blood from the bowels.

Physical Examination.—Seriously sick. Fairly developed and nourished. Very pale. Gums swollen, spongy, and bleeding. Tonsils large. Throat reddened. Systolic murmur over præcordia. Lungs normal. Abdomen lax. Edge of liver felt about one inch below costal border, sharp. Spleen palpable below rib border, three inches in breadth and two inches in length. Slight general glandular enlargement Numerous petechiæ over legs and abdomen. No evidences of rickets. No tenderness about joints or swelling over long bones. Temperature normal.

Blood.—Hæmoglobin, - -	25 per cent.
Red Corpuscles, - -	2,024,000.
White Corpuscles, -	87,400.
Lymphocytes, - -	83 per cent.
Large Mononuclear, - -	11 per cent.
Polynuclear Neutrophiles,	5 per cent.
Eosinophiles, - - -	1 per cent.

Slight variation in size of reds, almost none in shape. No nucleated forms. No myelocytes.

Fresh liquid diet, lemon-juice and stimulation were ordered. The child was not seen again, but died a week later. The bleeding from the gums and bloody stools continued, and the purpuric eruption increased. There was no autopsy.

In the light of the above history and blood examination there can be no doubt as to the correctness of the diagnosis of acute leucæmia in this case. If the history can be accepted as correct, the onset was acute with subcutaneous hæmorrhages and bleeding from the gums, and the duration of the disease only two weeks. Owing to the circumstances of the child's surroundings, however, it is possible that these marked symptoms may have been preceded for a time by others less noticeable. The child was, without question, well when it was put out to board, so that the duration, in any case, can not have been more than seven weeks. Although the grandular enlargement was not marked, while that of the spleen was considerable, the great bulk of the white corpuscles was made up of lymphocytes. The large mononuclear forms were also somewhat increased in number. The case must therefore be regarded as a mixture of the lymphatic and lienal varieties, although mainly of the lymphatic type.

The cases which have been previously reported are briefly as follows:

I. Wadham—Age, five and a half years. Always well except for chronic hypertrophy of tonsils. Illness began with pain in belly, constipation, cough and sleeplessness. When seen at the end of six weeks had lost much strength and was very pale. The tonsils and glands at the angles of the jaw were enlarged. There was no enlargement of the liver or spleen. There were no hæmorrhages at any time. Death occurred after two weeks of progressive failure.

The autopsy showed petechiæ in all the internal organs and in the eyes. The mesenteric glands were as large as walnuts. The liver showed numerous minute, opaque, yellowish-white spots, and weighed one pound and ten ounces. The spleen showed yellow infarcts, and weighed five ounces.

The blood, which was examined a few days before death, showed a proportion of three white corpuscles to one red.

II. Eichhorst—Age, eight years. Always healthy. Illness began acutely with precordial pain and the vomiting of large quantities of blood. This was followed by marked anæmia and ascites. The physical examination, made ten days later, showed no evidences of bleeding from the mouth or throat; tonsils normal; no glandular enlargement; spleen much enlarged, liver slightly; ascites; hydrothorax; marked anæmia; bloody diarrhœa and vomiting of blood began the next day, and continued until death, four days later; there were no ecchymoses, and the temperature was only slightly elevated.

The autopsy showed a large spleen; thrombosis of the portal vein; an ulcerated area at the cardiac end of the stomach—the source of the hæmorrhage; slight enlargement of the mesenteric glands; normal bone-marrow.

The blood on the eleventh day showed 25 per cent. of hæmoglobin, 1,000,000 red corpuscles and 88,000 whites. The reds showed no marked changes at this time. Degenerative changes were more marked on the fourteenth day, however, although there were no nucleated forms. The colorless corpuscles were about the size of the reds; no eosinophiles.

III. Müller—Age, four years; always healthy except for meningitis at three; illness began with cough and fever, which only lasted a week or so; loss of weight and color continued, however. At the end of a month, headache, sleeplessness, bellyache, constipation and nose-bleed began; physical examination at this time showed ulceration of throat; large glands in neck, but none elsewhere; moderate splenic tumor; slight enlargement of the liver; numerous large subcutaneous hæmorrhages; staphylococcus infection of the throat; vomiting of blood; bloody stools; temperature ranging about 40°; death in five days.

The autopsy showed hæmorrhagic diphtheritic inflammation of the fauces and larynx; universal parenchymatous lymphadenitis; hæmorrhages into skin, pericardium, indocardium, stomach and testicles; parenchymatous nephritis and hepatitis; diphtheritic enteritis; fatty degeneration of the myocardium; general anæmia; general infection with staphylococci and bacilli.

The blood was examined on the four days preceding the day of death. The first examination showed 40 per cent of hæmoglobin, 1,508,000 red corpuscles and 109,600 white. There were no very marked changes in the red cells. The differential count of the whites showed:

Lymphocytes, - - - - -	12 per cent.
Large and medium-sized mononuclear cells without granulations, - - - - -	85 per cent.
Polynuclear Neutrophiles, - - - -	2 per cent.
Eosinophiles, - - - - -	1 per cent.

The last examination showed 1,232,000 red cells and only 6,800 whites. Of these a few were lymphocytes, scarcely any large mononuclear, most polynuclear neutrophiles or eosinophiles. Müller attributes the changes in both the absolute and relative numbers of the white corpuscles to the acute staphylococcus infection.

IV. Müller—Age, four years; always healthy; illness began with malaise and pains all over; after four weeks a purpuric eruption appeared about the knees; progressive increase in severity of symptoms during the next two weeks, and hæmorrhage from the throat began. At this time there was marked swelling of the cervical glands, the spleen was distinctly palpable, and the liver reached four fingers' breadth below the costal border. The subcutaneous hæmorrhages increased in size and number, and the hæmorrhage from the throat continued; progressive failure and death in four days; no autopsy.

Several examinations of the blood, made during the last four days, gave almost identical results. They showed 25 per cent.–30 per cent. of hæmoglobin, 2,350,000 red corpuscles and 209,000 white. As in Müller's other case, the bulk of the white corpuscles was made up of large mononuclear cells with a large, round, feebly-staining nucleus, poor in chromatin, and a small amount of protoplasm. The differential count showed 16 per cent. of lymphocytes, 82 per cent. of large mononuclear and 2 per cent. of polynuclear cells. The red corpuscles showed no marked changes.

V. Goldschmidt—Age, two and a half years; always healthy; illness began with enlargement of cervical glands lasting two weeks. Two weeks later the glandular enlargement recurred and was accompanied by swelling of the tonsils and high fever. During the next week the spleen enlarged rapidly, and the liver could be felt two fingers' breadth below the costal border. The urine showed evidences of nephritis and the blood of leucæmia. Failure was progressive, except for a temporary amelioration of a few days, and death occurred in three weeks.

The autopsy showed general glandular hyperplasia; great enlargement of the spleen; moderate of the liver; nephritis. Bacteriological examination of the organs was negative.

The blood, microscopically, showed a great increase in the number of white corpuscles, especially of the lymphocytes. Eosinophiles were few and nucleated reds rare. The bacteriological examination of the blood was negative.

VI. Theodor—Age, four years; parents syphilitic; placenta syphilitic; always well; illness began with a very severe nose-bleed following a fall from a horse; ecchymoses had been noticed on the legs for two weeks, however. Slight splenic tumor was noticed two days later, and the proportion of red cells to white was then estimated as nine to one. Five days later the spleen was much enlarged, and enlargement of the cervical glands was noted. Renal hæmorrhage began and lasted eight days. The glands and spleen increased in size; the liver did not enlarge. There was bleeding of the gums, and numerous subcutaneous hæmorrhages developed. The temperature was never above 38°. Failure was progressive, except for a temporary remission, and death occurred four weeks after the fall; no autopsy.

The blood, shortly before death, showed one white cell to three red. An overwhelming proportion of the white corpuscles were lymphocytes. There were a few large mononuclear cells with a large, feebly-staining nucleus, some polynuclear leucocytes and a very few eosinophiles. The changes of severe secondary anæmia gradually developed in the red corpuscles. Cultures from the blood were sterile.

VII. Cabot—Refers to a case of Dr. F. C. Shattuck's, in which the blood was examined by Thayer. Age, infant. Duration, six weeks.

BLOOD.—White to red, as one to twenty.

Lymphocytes,	97.9 per cent.
Large Mononuclear,	0.4 per cent,
Polynuclear Neutrophiles,	1.4 per cent.
Eosinophiles,	0.1 per cent.

It is manifestly impossible to generalize from so small a number of cases. A certain number of conclusions do, however, seem justifiable. There is no evident general aetiological cause. The disease sometimes begins abruptly with typical leucæmic manifestations and sometimes with general indefinite constitutional symptoms which, in the course of days or weeks, develop into the characteristic picture of leucæmia. The course of the disease in children is not different from that in adults. In children, as in adults, acute leucæmia is usually of the lymphatic type. The blood differs in no essential particular from that of the disease in adults. Acute leucæmia in children is always fatal.

LITERATURE.

Cabot. Clinical Examination of the Blood, 1897. Page 347.

Eichhorst. Virchow's Archiv., 1892. CXXX., 365.

Goldschmidt. Münch. Med. Wochenschr., 1896. 714.

Müller. Jahrbuch f. Kinderheilk., 1896. XLIII., 130.

Thayer. Boston Medical and Surgical Journal, 1893. CXXVIII., 183.

Theodor. Archiv. f. Kinderheilk., 1897. XXII., 47.

Wadham. Lancet, 1884. I., 158.

317 MARLBOROUGH STREET.

AS TO INSUSCEPTIBILITY OF VACCINIA.—A CLINICAL CONTRIBUTION TO THE QUESTION.

BY H. ILLOWAY, M.D., NEW YORK.

Formerly Professor of Diseases of Children, Cincinnati College of Medicine and Surgery, etc., etc.

In the fall of 1884 I was called to vaccinate Isaac F., aged four years, a healthy lad, the third child of his parents. Father and mother, both, healthy and vigorous persons, free from all taint. The boy is very wild, out on the street all the time; he is much given to eating sweets and therefore does not eat so well at the table; he is very spare in flesh. He has never been vaccinated before. I obtained a package of vaccine points, prepared by Dr. Henry Martin of Boston, a vaccine which had always given me excellent results, and vaccinated him on the left arm, on two spots about an inch and a half apart. I used *two points* for the inoculation. The vaccination was a failure; it did not take. After an interval of a month I re-vaccinated him with virus from the same source and saw that it was thoroughly dried in before I left the house. The same result; again failure. We waited until the following April, 1885, and toward the end of that month I again vaccinated the boy, using points that came from a different source, from Pennsylvania. Failure. In May, vaccination; no result. In the early part of the fall of that year, a fifth vaccination was made on the right arm, with no better success.

Having previously vaccinated a number of infants of excellent parentage, I selected the finest baby of the number and carefully watched the development of the vaccine pustules, their subsequent drying and crusting, and thus obtained a splendid and typical crust.

About the end of October, shortly after the removal of the crust, I called at the house of the young gentleman who had proved so refractory, and vaccinated him with virus prepared from the crust. To be certain that the virus was not at fault, as a control, I vaccinated with the same virus, having at once prepared sufficient for all three, the brother and sister, aged respectively fourteen and twelve years, both of whom had already been vaccinated in infancy in Europe. In due time the vaccination took in the brother and sister, pustules developed and a typical crust subsequently formed. It was a splendid success here. In Isaac, however, it failed just as all the other attempts had failed.

After the lapse of some weeks I told the mother, who was very anxious that he be vaccinated, that I would make another attempt, but that I would vaccinate him on *the thigh* this time. I obtained some of the Henry Martin points and vaccinated him on the left thigh, in the middle and a little more toward the outer side. After a little longer period than usual, about eight days, the vaccination appeared to take; a redness was noted about the seat of the inoculation. It pursued the usual course, though without any marked general reaction. The vaccination was successful.

It might perhaps be thought that the vaccinations upon the arm had failed because the inoculated matter was washed out or squeezed out, purposely or inadvertently. This might hold good for the first attempt, but not for the subsequent ones. I was careful, as stated in the history, to wait until the incised and inoculated points had become thoroughly dry before I left the house, and, in addition thereto, cautioned the mother to guard the arm and leave it bare for another hour, and not to pull down the sleeves until then. I also directed her to omit the usual bath for the next two days, giving sponge baths instead, and avoiding any wetting of the vaccinated arm.

Neither can the failures be attributed to faultiness of the vaccine virus, for this I am certain was active and efficient; I am positive of this for this reason: The points were obtained in packages of a dozen, with which a number of children, with me from four to five, were vaccinated. All the vaccinations with points from the packages from which the points referred to in this history were taken, were successful. In the sixth attempt, in which the stronger humanized lymph was used, the same lymph which failed in the child, succeeded eminently in the brother and sister.

In the discussion of the question of the "Insusceptibility of Vaccinia," quite a number of writers on pedriatrics are inclined to deny it, holding that the cases of failure must be attributed to faulty virus, to lack of skill on the part of the practitioner, to one or both together.

However, it is at once apparent that such a position is absotutely untenable, and for the following reasons:

1. That all practitioners are sufficiently skilful to vaccinate well, and do so vaccinate—more especially so with the animal vaccine virus in points in common use for the last twenty years or more.

2. That all the vaccine points (even crusts) which fail, are replaced by the dealer with others, free of cost—and thus though the first set of points (or crust) might be defective, the others are not necessarily so, in fact they may be very active.

3. That all parents who have their children vaccinated, demand a re-vaccination if the first one fail.

In further proof, the facts are adduced that such cases of insusceptibility are exceedingly rare, which is admitted by all, and that the reports as to such cases emanate from men of large experience and much skill in vaccination.

It is true that Hardaway,* a dermatologist with possibly larger opportunities for extensive and careful observation, takes the same ground as the authors referred to; in view of what has been said we must conclude that he has relied upon their statement and repeated it.

Seaton†, than whom perhaps but very few have had larger or even equal opportunities for careful observation, admits that occasionally, though exceedingly rare indeed, a case is found which is insusceptible of vaccinia. Such a declaration, however, in any given case is only then justified, he says, when "vaccinations have been made by a practised hand and with lymph direct from the arm three successive weeks" and have failed.

This insusceptibility is, according to him, only temporary; the insusceptible case of to-day may be susceptible in a month, in three months, in a year.

In this connection a very interesting case is related, in a footnote, of a boy whose parents had him inoculated with smallpox virus. Six inoculations were made and failed. The father was then persuaded to allow vaccination to be tried. A like number of inoculations with vaccine virus were made and with the same result—failure. At a subsequent period the boy contracted the small-pox.

In his lecture on Cowpox, in the discussion upon Cowpox and Grease of the horse, that eminent clinician Trousseau‡ says this: "There are numerous examples in human pathology of inoculable diseases, not inoculable at all their stages, and also of diseases which can be set up more easily by introducing the virus at one part of the body than another."

---

*Essentials of Vaccination, &c., by W. A. Hardaway, M.D., Chicago, 1882.

†Handbook of Vaccination.

‡Lectures on Clinical Medicine.

A proper corollary to this is: "that in certain individuals certain parts of the body have a greater susceptibility for morbid matter than other parts," and facts to substantiate this are not wanting.

The question is, therefore, a very pertinent one: may not a certain part of the body be insusceptible of vaccinia whilst another part of the body will promptly respond thereto; *i.e.*, may not a person who appears refractory to arm vaccination be susceptible of the vaccine virus when it is inoculated into another part of the body?

If the answer be in the affirmative, and the case here reported appears to so answer very clearly and unmistakably, the question arises, are they not in the right who deny insusceptibility, who maintain that all, without exception, are susceptible of vaccinia.

To the latter question it may be opposed that the case does not at all disprove "insusceptibility;" it can be maintained that the boy was really insusceptible and that it was only by the repeated inoculations that this insusceptibility was overcome; or according to the views of Seaton, that the insusceptibility had ceased at the time of the last inoculation, and that, probably, had the last vaccination been made in the arm instead of the thigh, it would have taken there also.

However, be this as it may, this much seems to be established by the case reported, that vaccination which fails in the arm may succeed when made on the thigh, and we may, therefore, demand that no case shall be deemed insusceptible until the vaccination has been tried on another part of the body and there also failed, a condition more easily fulfilled than the one set up by Seaton, especially in this country, to judge by my own experience.

Furthermore in view of the doctrine generally accepted as true that insusceptibility is but temporary, for a longer or shorter period, the question here raised and hitherto not touched upon is of much importance.

1138 MADISON AVENUE.

A HOUSE EPIDEMIC OF ENTERIC FEVER AMONG CHILDREN.*

BY GEORGE WOODWARD, M.D.,

Philadelphia.

Enteric fever in childhood follows an erratic course, judged by the classical symptoms of the disease in adults. The six cases I present to you are no exceptions to this well-established observation. The diagnosis for this reason becomes more doubtful. The Widal reaction for this reason becomes more valuable. Two of my cases were not seriously put to bed until the blood examination made it imperative. None of the cases came under my observation until the acme of the temperature cure had been nearly reached.

The essentials of symptomatology and treatment were as follows: Malaise, frontal headache, anorexia and constipation; no epistaxis; evening maximum, morning minimum of temperature; lips parched and fissured in Cases No. I. and No. II.; tongue, in all, furred in center, showing red tip and edges; abdomen not prominent nor tender; spleen not palpable, with one exception; lungs of five gave symptoms and signs of bronchitis; one had a characteristic crop of rose spots; one had furuncles; one relapsed.

Treatment.--Rest in bed as soon as the diagnosis was made; liquid diet at two and three hour intervals; calomel in the earlier days; strychnine three or four times in the twenty-four hours; codein in two cases; whiskey at three-hour intervals—in the case of the relapse, brandy or whiskey was given in doses of one-half dram every hour for twenty-four hours during the height of the relapse—plunge baths at three hour intervals when the temperature was above 102.5°; last, but by no means least conspicuous, enemata; two cases showed transient diarrhœa.

I have brought two of the hourly reports to illustrate the two cases interesting from a bathing standpoint.

Kate N., aet. fifteen, was a bitter anti-bather; Florence C., aet. ten, submitted gracefully. They were both quite ill, Kate showing an unstable, nervous equilibrium; Florence required hypodermics of strychnine, brandy to overcome nausea, and whiskey at hourly intervals until the breath betrayed the odor of alcohol. Kate came out of the bath blue and irritable, with often an increased temperature and pulse rate; Florence complained only of her furuncles in the bath, responded well, and when rolled in her blanket soon went to sleep. The cases are now all convalescent: pale, thin, and voracious. Florence was the most seriously ill, and for this reason the behavior of her blood in the Widal test becomes instructive. She came under my care on January 3. On January 5 the blood did not arrest the movements of the typhoid bacilli; January 8, negative. January 12 the bacilli were inclined to clumping, but not arrested. January 18, temperature normal, the reaction was pronounced. January 20, the temperature rose sharply, and the case relapsed. Dr. Stewart, of the City Bacteriological Laboratory, who made the Widal tests, informs me that he always finds the reaction tardy in the severe cases.

---

* Read before the Philadelphia Pediatric Society.

The epidemic occurred in Bethesda Home, Chestnut Hill. There are 180 children in this institution, distributed among four houses. Near the older girls' house is a well twenty-five feet deep; nearer the house and on higher ground is a cesspool twenty-five feet deep and uncemented. The cesspool was in constant use for many years until January, 1897, when the four buildings were connected with the city sewer. The cesspool was then discontinued and filled with ashes, but was not cleaned. During the summer of 1897 the pump water was freely used by all the children. As the colder weather approached, the children resident at some distance from the pump did not drink the well water. The older girls, however, who lived in the immediate vicinity of the well, continued to drink from it.

I had, two years and a half previous to this outbreak, submitted the water to chemical analysis, and now present the two reports. Both reports were made by the chemist to the Board of Health, Dr. Robinson.

PARTS PER MILLION.

	POTABLE.	UNPOTABLE.
	June 12, 1895.	January 5, 1898.
Chlorine, - - -	12.32	19.470
Nitrites, - - -	None	0.006
Nitrates, - - -	2.00	8.000

Free Ammonia,	Traces	0.140
Albuminoid Ammonia,	Not Determined	0.060

STANDARD SPRING WATER.

PARTS PER MILLION.

Chlorine,	4.60
Nitrites,	None
Nitrates,	1.20
Free Ammonia	Traces
Albuminoid Ammonia	Traces

Etiology of Lobular Pneumonia.—Kreibich (monograph published by Braumüller, Vienna, 1896) examined twenty-seven cases of lobular pneumonia, twenty of which were of the inspiration variety. In twenty-three he found the diploccoccus pnemoniæ eleven times in pure culture, five times with B. coli communis, four times with staphylococcus pyogenes aureus, once with each B. pneumoniæ streptococcus pyogenes, and another unrecognized micro-organism. He asserts that bronchopneumonia, and especially inspiration pneumonia, are generally caused by the diplococcus pneumoniæ, but he notes that in man B. coli is also capable of causing lobar and lobular pneumonia. As an auto-infection from the cavity of the mouth, the occurrence of lobular pneumonia dependent upon the diplococcus pneumoniæ is favored by such conditions as heart failure, hypostatic hyperæmia, etc. In most cases of coli pneumonia there is infection by the blood from the intestine or from inflammatory processes in the urogenital tract. Inspiration pneumonia may end in suppuration, in gangrene, or in induration. With regard to the first termination, the variety of exudation is not generally influenced by the question whether the diplococcus was alone present or in company with other organisms, though the exudation has a tendency to be bloody if large infective masses are suddenly inspired. Gangrene is generally caused by anaërobes and saprophytes probably present in the inspired mass, which induce putrid changes in the contents of the bronchi, and by their katabolic products lead to necrosis of the inflamed portions of the lung. Induration apparently occurs when the metabolic products of the bacteria constitute a long-continued stimulus to productive inflammation.—*British Medical Journal*

THE MODIFICATION OF MILK BY THE DECIMAL SYSTEM, WITH SPECIAL REFERENCE TO PERCENTAGE ADJUSTMENT.*

BY HENRY L. COIT, M. D.,

Attending Physician to the Babies' Hospital, Newark, N. J.

The question of the adaptability of materials to the nutrition of infants is one upon which physicians have long held diverse opinions.

That conflicting views should exist even among careful observers, and concerning a matter of such vital importance is sufficient warrant for any attempt to simplify methods of work.

Of the materials which have been employed as substitutes for woman's milk in the past, cow's milk has always enjoyed the highest reputation, and the integrity of its position has never been successfully assailed.

It is, moreover, a sign of progress that physicans who have hitherto made use of manufactured foods, and who have championed other questionable methods of hand-feeding, are rapidly yielding to the growing confidence in the milk of a lower animal for this purpose. In order to utilize the clinical and chemical data which have been gathered in recent years concerning rational substitute feeding, three general requirements must be fulfilled:

First. That proper materials out of which to construct an infant's food, as regards its nutritive values and purity shall be obtainable.

Second. That methods of using them shall be formulated whereby in their combinations uniform and accurate results may be obtained.

Third. That a system of modification shall be devised which will enable the physician to calculate percentages with ease and exactness, and interpret his formulæ for the intelligent instructions of the nurse.

That we are approaching a fulfilment of the first of these conditions is conceded. There is undoubtedly an improvement in the methods employed by producers of cow's milk, stimulated as they have been by the demands of physicians to furnish a better quality of milk for clinical purposes.

---

* Read before the Section on Pediatrics, New York Academy of Medicine, April 14, 1898.

The second of these conditions has been met in part by the synthetical adjustment of milk, as carried on in several large cities in milk laboratories. These advantages, however, are not available for the masses, whose children deserve to be well fed; nor are they utilized by the rank and file of the profession who are within easy reach of them.

During the past few years much has been accomplished through the labors of Rotch, Holt and others toward a scientific basis of modification, and recently excellent systems of calculation have been suggested by Westcott and Bauer.

It is the purpose of this paper to present another system of modification in the hope that it may possess some intrinsic merit for calculations, and reduce the ordinary preparation of milk mixtures to greater simplicity and precision.

It has long been my opinion that the metric system of measure should be adapted to milk modification, and that volumetric principles should be utilized, if we would eliminate the errors of ordinary methods and acquire simplicity and accuiacy in technique.

The decimal system of modification is based upon the use of volume standards representing the proximate principles of milk, together with the employment of the metric system for calculations and measurement.

The metric system is employed because its unit of measure, the cubic-centrimetre bases the simplest possible relation to percentage thinking.

The volume standards are employed because, holding fixed and constant percentage contents, they sustain the simplest possible relation to percentage values.

The two are combined because the intimate relation of the one to the other furnishes the most direct method of working out possible percentage combinations.

The system has the following advantages: It enables the physician to adjust a formula to an individual case with a simple calculation, and without the use of algebraic equations, or the necessity for memorizing recommended combinations.

It allows him to raise or lower any or all of the constitutents of a mixture with the same facility with which he wrote the original formula and to acquire the same percentage accuracy.

It puts in his hands the ability to accomplish with home modification what the milk laboratory is designed to do on his prescription, and to do this with factors having uniform values and by the use of one mathematical principle.

Standard decimal preparations may be employed for effecting percentage composition, provided that the total solids to be added by calculation are not more than ten per cent., and since it is never necessary to compute more than ten per cent. of solids in imitating woman's milk with these standards, it is possible to effect approximate exactness in the percentage composition of the mixtures.

Three standard preparations are all that are required.

A decimal cream or superfatted milk for introducing the fat.

A saccharated skim milk for introducing proteids not carried by the cream, and

A standard sugar solution for introducing lactose not carried by the cream or the skim milk.

Only two of the standards are required during the first few months; these are the decimal cream and the standard sugar solution. Up to the fifth or sixth month, or when it is desired to allow more than the one-and-a-half per cent. of proteids supplied by the cream, and to meet the increasing power of the child to assimilate these elements, the proteid strength of the food may be raised with skim milk.

Decimal Cream.—It was found that fifty samples of bottled milk collected on fifty consecutive days, and which, in each case, were allowed to stand with ice for fifteen hours, yielded approximately 180 cc., or six fluid ounces of gravity cream with very slight variations. My own estimations of the fat in these samples were verified by analyses made for me by Leeds. Such cream contains 15.14 per cent. of milk-fat, and shows a loss of proteids and lactose from whole milk of one-half of one per cent. respectively. By adding to this cream half its volume of water, a 10 per cent. or decimal cream is prepared.

Other standard preparations representing ten per cent. of milkfat may be made from gravity cream, plus skim milk, and also from centrifugal cream, (20 per cent. fat) by adding an equal volume of water. The former would consist of the top 300 cc. (10 or 11 ozs.) from a quart of bottled milk after the cream has been raised; this cream where a high proteid strength is required. The centrifugal decimal cream, on the other hand, would show low proteid strength in mixtures in which it was incorporated; but its range of usefulness is not wide, nor has it any special advantage over the gravity cream standard.

PERCENTAGE COMPOSITION OF DECIMAL CREAM.

No. 1. Gravity.	Fat, 10.00	Proteids, 2.33	Lactose, 2.06	Water and Salts, 85.01
No. 2. Top Milk.	Fat, 10.00	Proteids, 3.75	Lactose, 4.50	Water and Salts, 81.75
No. 3. Centrifugal.	Fat, 10.00	Proteids, 1.50	Lactose, 2.00	Water and Salts, 86.50

The following table shows the approximate percentages of proteids and lactose carried by three decimal creams when they are used to introduce into milk mixtures definite fat values.

FORMULÆ.

No. 1. Gravity Cream, 180 c.c. (6 fl. oz.) + water, 90 cc. (3 fl oz.)
No. 2. Top milk including gravity cream, 300 c.c. (10 fl. oz.)
No. 3. Centrifugal cream, 20 per cent. fat + water, equal volumes.

	PER CENT.		PER CENT.	PER CENT.
Decimal Cream No. 1.	For introducing Milk fat, 4.00	also carries	Proteids, 1.00	Lactose, 1.00
	" " " " 3.50		" 0.80	" 0.00
	" " " " 3.00		" 0.70	" 0.80
	" " " " 2.50		" 0.60	" 0.70
	" " " " 2.00		" 0.50	" 0.50
Decimal Cream No. 2.	For introducing Milk fat, 4.00	also carries	Proteids, 1.50	Lactose, 1.80
	" " " " 3.50		" 1.30	" 1.60
	" " " " 3.00		" 1.10	" 1.40
	" " " " 2.50		" 0.90	" 1.20
	" " " " 2.00		" 0.70	" 0.00
Decimal Cream No. 3.	For introducing Milk fat, 4.00	also carries	Proteids, 0.60	Lactose, 0.80
	" " " " 3.50		" 0.50	" 0.70
	" " " " 3.00		" 0.45	" 0.60
	" " " " 2.50		" 0.40	" 0.50
	" " " " 2.00		" 0.30	" 0.40

The foregoing table is based upon 51 analyses by Albert R. Leeds, Ph. D., of average cow's milk from a herd of 500 animals of mixed breeds, made during a period of four years, and represents an average total solids content of milkfat 4.50 per cent., proteids 3.75 per cent. and lactose 4.50 per cent. The fractions per cent. are expressed by the nearest decimal, in order to facilitate the estimation of proteids and lactose to be added.

Saccharated Skim Milk.—Referring to the proteids of cow's milk, it should be borne in mind that they differ widely from the same elements in woman's milk. In the former about three-quarters of the proteids are in the form of insoluble casein in suspension and easily coagulable, while in the latter, two-thirds of the total proteids are in solution as lactalbumin and not-coagulable. If a decimal proteid solution could be devised which would correspond more closely to woman's milk, the addition of these elements would be much simplified and the greatest difficulty met with in infant feeding would be solved. An ideal substance has not yet been suggested. Egg albumin has been mentioned for this purpose; it contains 20 per cent. of pure albumin and is easily standardized at 10 per cent., but it is not satisfactory since it is a very complex substance chemically and differs widely from lactalbumin. In its raw state it is insoluble in water, is coagulable at a low temperature, and could have but a very limited application to normal infant feeding.

Thus far skim milk has served our purpose better. This material contains 4 per cent. of proteids and 5 per cent. of sugar, or 20 per cent. more sugar than proteids, a ratio of 5-4; therefore, when it is desired to introduce 1 per cent. of proteids into a mixture with skim milk, at least 1¼ per cent. of lactose must also be added; and when ½ per cent. are required, ⅝ per cent. of lactose are added. These fractions of sugar are found to be confusing in calculations, and the use of skim milk for proteids is much simplified by standardizing the sugar at 10 per cent. by the addition of 5 per cent. more. This is accomplished by dissolving 50 grams of sugar of milk in 1 litre of skim milk, which is the equivalent of one ounce in twenty. With this standard the introduction of proteids is very simple. A given amount of food multiplied by .25 would indicate one-quarter of its bulk, which, if skim milk, would add to the mixture 1 per cent. of proteid. This same decimal multiplier would indicate the percentage of sugar thus introduced by a 10 per cent. solution. The following table will show the lactose carried by the saccharated skim milk corresponding to definite proteid values:

Amount of Food in c.c.	× .125	or ⅛=	Saccharated Skim-Milk	=Proteids,	0.50	Lactose, 1.25
" " "	× .250	" ¼=		= "	1.00	" 2.50
" " "	× .375	" ⅜=		= "	1.50	" 3.75
" " "	× .500	" ½=		= "	2.00	" 5.00

The standard sugar solution is easily prepared by dissolving 100 grams of lactose in sufficient water to make measure 1 litre (or in the proportion of 2 ounces by weight in 20 ounces of water). The only difficulty with the sugar is found in occasional impurities, such as free lactic acid, which should be guarded against on account of its ability to precipitate the casein of the milk.

For the calculation of formulæ three facts only are required to be carried in the mind, namely: The percentage formula desired; the quantity of food required, and that the standards, except for proteids, represent percentage values in the ratio of 1 to 10.

Given these constant factors the problem of adjusting percentage composition is an easy one, by reducing the quantity of food required to cubic-centimetres (ounces multiplied by 30) and multiplying this product by the percentage tenth of the element to be introduced.

The following examples will serve to illustrate:

ONE FEEDING.			MILK FAT.	PROTEID.	LACTOSE.
(2 fl. oz. × 30)=	60 c.c.	Required Percentage Formula.	2.00	0.50	6.00
	.2	Decimal Cream Introducing.	2.00	0.50	0.50
Decimal Cream,	12.0 c.c.				
	60 c.c.	Sugar Solution Introducing.			5.50
	.55				5.50
			WORKING FORMULA.		
	300		Decimal Cream,		12 c.c.
	300		Standard Sugar Sol.,		33 c.c.
Standard Sugar Sol.	33.00 cc.		Water,		15 c.c.
			(2 fl. ounces) or		60 c.c.

ONE DAY'S FOOD.			MILK FAT.	PROTEID.	LACTOSE.
(35 fl. oz. × 30)=	1050 c.c.	Required Formula.	4.00	1.00	6.50
	.4				
Decimal Cream,	420.0 c.c.	Decimal Cream.	4.00	1.00	1.00
					5.50
	1050 c.c.	Standard Sugar Sol.			5.50
	.55				
			WORKING FORMULA.		
	5250		Decimal Cream,		420 c.c.
	5250		Standard Sugar Sol.,		577 c.c.
Standard Sug. Sol.	577.50 c.c.		Boiled Water (including Alkali),		53 c.c.
		To be divided in 7 feedings of 5 ounces each.	(35 fl. ounces) or		1050 c.c.

ONE FEEDING.			MILK FAT.	PROTEID.	LACTOSE.
(8 fl. oz. × 30)=	240 c.c.	Required Percentage.	4.00	2.00	7.00
	.4				
Decimal Cream,	96.0 c.c.	Decimal Cream.	4.00	1.00	1.00
				1.00	6.00
	240 c.c.	Sacch. Skim Milk.		1.00	2.50
	.25				
					3.50
	1200	Standard Sugar Sol.			3.50
	480				
Sacch. Skim Milk,	60.00 c.c.				
	240 c.c.				
	.35				
	1200				
	720				
Standard Sugar Sol.	84.00 c.c.				

WORKING FORMULA.	
Decimal Cream,	96 c.c.
Sacch. Skim Milk,	60 c.c.
Standard Sugar Sol.,	84 c.c.
(8 fl. ounces) or	240 c.c.

General Considerations.—It should be borne in mind that the milk of a single cow cannot be used for successful or accurate modification, since the fats of the milk of one animal shows a wide variation during the year, ranging from full milking capacity, when only half the fat is found that appears in the drying up period of lactation. Not so, however, with the milk of a herd in which "dry cows" are being constantly replaced by "fresh ones." Such milk shows a remarkable uniformity throughout the year if proper feeding obtains, and may be used for preparing decimal creams for modification with a marked degree of accuracy. The evening's milk is preferred to morning's milk, since fifteen hours are required for the precipitation of the fat above the line which allows the removal of a proper gravity cream.

Concerning centrifugal or machine-made cream, several objections arise which must be overcome in order to obtain the best results with it; they are the greater danger of specific contaminations, the possible age of the cream, its rich bacterial content, the mechanical agitation to which the fat globules have been subjected by the 6,000 revolutions per minute in the machine, and the difficulty in standardizing it with uniform results, except in a district where the supply is under special control.

On the other hand, the advantages of gravity cream are its uniform freshness, its uniform fat, the fact that its emulsion of fats has received no vigorous agitation, and the ease with which it is obtained from bottled milk and standardized by the addition of water.

The use of water for the solutions is an important matter since the mineral salts of cow's milk differ materially from those in woman's milk, and potable waters vary in the character of their mineral constitutents. It has been suggested by Leeds that cow's milk lacks about 0.60 per cent. of the alkaline carbonates found in woman's milk. The calcium phosphate in cow's milk being in excess the necessary amount is preserved in dilution, so that the use of water containing much lime is contra-indicated. The potassium and sodium salts are deficient, but this difficulty could be overcome by employing a solution of potassium or sodium carbonate, and possibly one of sodium chloride for the introduction of each of about one-quarter the total amount of combined salts found in woman's milk. Such addition would serve the purpose of supplying to the child elements which are essential to its growth.

51 HALSEY STREET.

Results of Resection of the Knee in Childhood.—Kirmisson (*Rev. d' Orthopédie*) publishes a case of unusual distortion of the lower limb following resection of the knee in a child nine years of age. The leg was semiflexed, and there was also a slight degree of genu varum, the leg and thigh forming an angle the apex of which was turned outwards. This condition was associated with a compensating pes valgus and considerable obliquity of the pelvis. This case is brought forward by the author in support of his view that arthrectomy and resection of the knee are, except in some very few cases, contra-indicated in subjects under the age of fifteen years. In children, it is asserted, methods of conservative and bloodless treatment give much better results than cutting operations. The latter are liable to result in considerable shortening of the limb in consequence of interference with the epiphysical cartilages, and in complete deviations of the leg, which in most instances is turned outwards.—*British Medical Journal.*

Clinical Memoranda.

MYXŒDEMA FOLLOWING AND APPARENTLY DUE TO VACCINATION.

BY V. M. REICHARD, M.D.,
Fair Play, Md.

In a line with Dr. Beiser's paper in the December number of THE ARCHIVES on some unusual phases of vaccination, I desire to report a case, which though an adult, shows what serious results may sometimes happen from this usually insignificant operation. In 1880, during a smallpox scare, many adults were vaccinated; Mrs. S., fifty years of age, was among the number. She was a large, strong, robust, country matron, the mother of a large family, with never any serious complaint of any kind. Her attendant vaccinated her with virus in the form of a paste. There was severe infection, a large sore resulting, which had not entirely healed two years later when I saw her. Coincident with the appearance of the sore on the arm, the whole appearance of the woman underwent a change and she developed into an accurate and complete clinical picture of myxœdema. This being before the days of thyroid treatment, of course the case was not successfully treated, and she succumbed in a few years to an attack of enteritis. Her family have always been clear and positive that her decline began with her vaccination.

A CASE OF TETANY.*

BY DOUGLAS C. MORIARTA, M.D.
Saratoga Springs, N. Y.

During the past month I have had a case of tetany under observation in an infant and present the report for discussion. While it is the first case I have observed, I feel that the diagnosis is correct, as it was a typical one. Some idea of the frequency of this condition is obtained from Griffith's report in the *American Journal of the Medical Sciences*, February, 1895, who could find only fifty cases reported, thirty-eight of these being in children.

E. H., male, eighteen months old, was a large, plump, well-formed child at birth, which was an easy one and of short duration. The family history of both parents is negative; the father is a particularly strong, hard-working man; while the mother is always well and about, though she is of a more nervous or irritable type. They have had one other child which died at the age of two years with whooping cough. The mother nursed the patient until he was seventeen months old, since which time he has had milk and some table food. The child walked at fourteen months and talked a few words at twelve months. While he has always been a big baby and in fair flesh, he has never been fat and rosy as we so often see. He cut his first teeth at seven months and has now a mouthful. The head is round and well-formed; the mother says the fontanel closed as usual. The form of the chest is natural, with no indication of rickets; the only sign of weak ossification is that he is quite markedly bowlegged; the prepuce is partially adherent.

---

*Read before the Saratoga Medical Society, February 4, 1898.

Since his birth I have been called to see him several different times; once for a cold. Usually, however, his mother was anxious concerning his food, thinking it did not agree with him. During last summer he had a sharp attack of gastro-enteritis with a good recovery. He has been constipated since his birth, and requires cascara or some similar drug every night; while his kidneys are in good condition, to his mother's mind. He sleeps well and, all in all, is not a fretful child.

I saw the little fellow three times during the first of the month; he had a cold with some bronchial irritation, but the disturbance in his bowels was bothering his mother. His father would insist on his having food from the table and gave it, notwithstanding my advice to the contrary. His abdomen was tympanytic and hard; pulse and temperature practically normal. I gave him a good dose of calomel at my first visit and positively restricted his diet to milk, with a few drops of diluted muriatic acid four times daily. He promptly improved. I did not hear from him again for five days, when a message was received to come and see him. I found on my arrival at the house that he had been taken with a spasm suddenly, and that not being able to reach me, they had called Dr. Humphrey. The mother said the day before and that morning he was as usual, except that she noticed when he walked he waddled; she did not think he had a regular spasm, but straightened out. His hands and arms were stiff, as were his feet on both sides; she does not think he lost consciousness.

It was two hours after he was first taken when I saw him. His hands were exactly alike, the fingers were extended, but flexed at the metacarpo-phalangeal joint; the thumbs were adducted and the wrists flexed. The feet were strongly extended on the ankle and the toes flexed on the foot. There was marked rigidity at the joints mentioned, while at the elbow, knee, and hips, motion seemed normal. The pupils were alike, normal and responded to light. This condition of spasm continued uninterruptedly for seventy-two hours; then the hands relaxed, and sometime during the next twenty-four hours the feet became normal. During this time the temperature and pulse were normal, while the breathing was accelerated and about thirty per minute. He took a fair amount of nourishment, was a little fretful, but on the whole not bad.

For treatment Dr. Humphrey had directed an enema (resulting in a large, undigested, foul-smelling stool), with bromide in divided doses. I gave him a high enema, which resulted in a larger, natural stool; this was followed by ten grains of calomel from which there were several stools; also two doses of chloral and bromide. The first doses were seven grains of chloral and ten grains of bromide by the rectum, repeated in four hours; then five grains of bromide of soda every four hours. His diet was regulated to half milk and water.

I did not try any of the classical signs or determine the condition of the reflexes to see if the spasm could be reproduced; I was too much pleased at the final complete relaxation to see if I could reproduce them. The gastro-intestinal tract I believe to have been the primary seat of the trouble, either from local irritation of too coarse or indigestible food, or from the absorption of poisonous toxines from imperfect digestion—probably the latter.

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

MAY, 1898.

Edited by FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician,
Hospital for Scarlet Fever and Diphtheria; Consulting Physician,
Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241–243 WEST 23D STREET, NEW YORK.

THE NEUROSES OF EARLY LIFE.

It requires no argument to prove that the developmental period is a most important one in the life of an individual. While this is true of all the organs and systems of the body, it is particularly true of the nervous system. Many organs are as perfect in infancy as in adult life. The kidney, though small in size, is as perfect in its development and functional activity in the infant as in the adult. The brain differs from nearly every organ in that it requires years to develop its functional activity. "A child," says Ireland, "comes into the world with one-third of the volume of his brain; he acquires the second third before twelve months are passed and the rest between that time and the twenty-first year." The brain of a child of seven years has gained almost its full weight. The infant of twelve months possesses almost two-thirds the brain substance of the adult. But its functional capacity in the twelve months' infant is not one-hundredth part that of the educated adult. Herein lies the great difference between the nervous system and every other system of the body. Its physical development keeps pace with or exceeds that of the body at large, but its functional development is exceedingly slow, requiring years for its completion.

The higher we go in the scale of civilization, the more prolonged is the period of functional growth. It is easy to understand, therefore, why so many different nervous diseases develop at different periods, and why so many defects appear for the first time at varying intervals during the period of twenty or twenty-five years. The brain has certain well defined stages and periods of development. Various forms of nerve disorder appear as these various stages are reached, and the relationship of many of these diseases conditions to the period of development is very clear. The expression *neuroses of development* is, therefore, most appropriate and well chosen.

A knowledge of these periods and the diseases which are common to each is most important to the general practitioner, for these diseases come first under his observation. The nervous diseases of children have of late received much study. A most admirable series of articles on the neuroses of childhood by Dr. Rachford was published not long since in The Archives. Dr. Clouston of Edinburgh, about five years ago, also wrote a most original and instructive series of papers on the neuroses of development. The work of these authors has been most potent in calling attention to this important subject.

DEVELOPMENTAL PERIODS OF LIFE.

A study of the developmental periods of life elucidates many obscure phases of disease during childhood and youth. Certain defects are characteristic of certain periods and invariably develop within certain age limits. These periods Dr. Clouston, in the papers referred to above, has described with great clearness. Heredity it is certain, plays an important part in the causation of these defects, the hereditary tendency showing itself as certain developmental periods appear.

The first of these periods is the embryonic. It is clear that inability of the embryo to complete the formative processes through which the various organs attain their normal type, must result in very radical and grave defects, both physical and mental. Defects of this character are innumerable. The most common are hare-lip, deformed palate, spina-bifida, talipes, acephaly, and various forms of genetous idiocy.

At birth a grave crisis occurs in the life of the individual. It is then to be determined whether the development of the various organs is sufficiently perfect to maintain independent life. In multitudes of cases the test is too severe and the infant dies from innate defects and inability to adapt itself to the new conditions.

The next period that brings out the defects of bad heredity is that of rapid brain growth, which extends from birth until about seven years. This is the period of special sense education, motor co-ordination, and speech. The pathological conditions incident to this stage are convulsions, night terrors, infantile paralysis, stammering, strabismus, hydrocephalus, liability to sudden rises of temperature, and numerous other abnormalities. Most of these are associated more or less closely with the great brain growth, and the development of certain brain functions, such as speech and equilibrium, and with the appearance of functional activity of special sense organs and their brain centers.

The next period extends from seven to thirteen years, when muscular motion becomes fully co-ordinated with emotion, as seen in facial expression. The diseases incident to this period are chorea, epilepsy, somnambulism, migraine, and certain eye defects.

The last period of development extends from thirteen to twenty-five and is marked by the perfection of the reproductive organs with all the trophic, motor, emotional, and moral development that center around this period. We now have hysteria, epilepsy, eccentricity, and certain forms of emotional wilfulness, and moral perversion. While the exact boundary lines of these various periods are variable and not well defined, much may be learned regarding the various neurotic conditions of early life by due consideration of such a classification.

PREVENTION OF THE NEUROSES INCIDENT TO THE PERIOD OF DEVELOPMENT.

It is clear that heredity is a very potent predisposing cause in nearly all the neuroses common to the developmental period of life. In some instances it is the only cause, neurotic conditions being inevitable during growth and development. In other cases heredity can only be considered a predisposing cause more or less remote, some active, exciting cause being necessary to waken the disease into activity. The possibilities of prevention are many, and it is here that preventive medicine may find some of its greatest opportunities. In spite of all that can be done, however, many must suffer. Their fate was sealed before birth, and no skill can overcome the defects they have inherited. Nevertheless, something can be done for all, and some can be saved entirely. No better advice has ever been formulated than that given by Dr. Clouston: "Build up the bone and fat and muscle, especially the fat, during the periods of growth and development. Make fresh air thé breath of life to the young. Develop lower centers rather than higher ones, when there is bad heredity. Don't give too much fresh and nitrogenous food during growth and adolescence, as being special stimulants to the higher cortex, and to the too early development and dominance of the reproductive functions and sexual nisus. Avoid alcohol and nervine stimulants absolutely, if possible. Do not cultivate, but rather restrain, the imaginative and artistic faculties and sensitivenesses and the idealisms generally, in the cases where such tend to appear too early and too keenly. They will be rooted on a better brain and body basis if they come later. Cultivate and insist on orderliness and method in all things. The weakly neurotics are always disorderly, unbusinesslike, and unsystematic. Fatness, self-control, orderliness are the three most important qualities for them to aim at."

Bibliography.

Orthopedic Surgery. By James E. Moore, M. D. *Professor of Orthopedia and of Clinical Surgery in the College of Medicine of the University of Minnesota, with 177 illustrations.* Philadelphia: W. B. Saunders, 1898. Pp. i., 354. Price $2.50.

At first thought a new work on orthopedic surgery was not required by the profession. Reading of the present book, however, shows that the author has covered ground not before fully covered. He has produced a book based upon his own experience, in which special stress is laid upon early diagnosis, and treatment such as can be carried out by the general practitioner. The teachings of the author are in accordance with his belief that true converatism is to be found in the middle course between the surgeon who operates too frequently and the orthopedist who seldom operates.

The aim has been, apparently, to produce a book adapted to the requirements of the practitioner. This is chiefly seen in the attention devoted to diagnosis and the rather unusual method of considering treatment. Instead of giving in detail various methods that have been employed or proposed, he gives only such methods as have yielded the best results in his own practice. The simplest forms of apparatus are recommended, such as can be most readily applied by the general practitioner. In following this method he has on the whole done extremely well, but in a few places efficacy has been somewhat sacrificed for the sake of simplicity.

The illustrations are worthy of particular mention, as they are for the most part extremely good. They are entirely practical, and have clearly not been introduced for the mere sake of illustrating the book. The printer has also done unusually well in making the book attractive in appearance and convenient as a work of reference. On the whole, the book is an excellent one, and cannot fail to be of great practical value to the practitioner.

The International Medical Annual and Practitioner's Index: A Work of Reference for Medical Practitioners. *By Over Forty Contributors.* 1898. Sixteenth Year. New York: E. B. Treat & Co., Pp. i., 740. Price, $3.00.

The yearly volumes of this admirable work have become too well known to require extended notice. The sixteenth volume is unquestionably better than any which have preceded it. It is not only larger but the literary and scientific grade of its contents is an advance upon the already high standard of former years. The illustrations are numerous and extremely good. This work has always been liberal in the space devoted to pediatrics and othopedics. The present volume, while it contains a somewhat less number of articles than did the last, is nevertheless, very full upon those subjects.

The review of therapeutic progress for 1897 is written by Dr. Murrell and is a most admirâble essay. The dictionary of new remedies is unusually complete and in itself forms a treatise most helpful to the practitioner.

Diphtheria receives extended notice but less is said upon serum treatment than in the last two volumes, apparently because the question is becoming so far settled that there is less discussion upon it. The subject of summer diarrhœas is also considered very satisfactorily. The section on insanity in children by Fletcher Beach is an admirable monograph and worthy of particular notice. Orthopedic surgery receives rather more than usual attention and the illustrations are extremely good.

On the whole the present volume fully confirms the opinion expressed regarding a previous volume of this excellent work, that the great number of subjects considered, the vast amount of literature reviewed, the conciseness yet completeness of the work, render it by all means the most valuable year book at the command of the practitioner.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON ORTHOPEDIC SURGERY BEFORE THE ACADEMY.

Meeting of February 17th, 1898.

DR. E. G. JANEWAY,

President of the Academy, in the chair.

DR. T. H. MYERS read a paper on "Non-tubercular inflammations of the spine." The following is an abstract of the paper and discussion:

DR. MYERS said that the syphilitic inflammation of the spine was found in all regions of the column and might involve any of the tissues and any of the vertebral parts, with the exhibition of periostitic, osteitic, and other varieties of inflammation. In the cases of two boys whose histories were related, the cervical and dorsal regions were affected respectively. In the former there was the deformity of wry-neck and in the latter a kyphos. Pain and rigidity were present. There was no history of transmission, but the presence of syphilitic dactylitis and prompt and repeated response to anti-syphilitic medication determined the diagnosis. Both patients were much relieved by mechanical treatment.

DR. W. R. TOWNSEND said that this form of spine disease was a rare affection. The kyphosis did not differ from that of the spine affected with tuberculosis, and there was generally a history of inherited syphilis.

DR. R. H. SAYRE said that in making a diagnosis in children the presence of multiple arthritis would indicate syphilitic rather than tubercular disease of the spine, especially if the child was under eighteen years of age.

DR. B. LAPAWSKI said that dactylitis syphilitica had no characteristic symptoms and was therefore valueless in distinguishing between syphilis and tuberculosis. Neither was a response to anti-syphilitic treatment a certain guide, since anti-syphilitic medication produced good results in tubercular diseases.

THE PRESIDENT said that it was not rare to see a person suffering from both tuberculosis and syphilis. He had also seen cases which were thought to be tubercular, but which yielded to antisyphilitic treatment.

Dr. Myers said that the relation of congenital syphilis to tuberculosis was not well understood. It was possible that transmission might make the offspring a more than usually favorable soil for tubercular infection. Moreover, there were cases of a mixed infection, a tuberculous subject acquiring syphilis or vice versa.

In rheumatoid arthritis, other joints were also affected and there was slowly increasing and poorly defined deformity from inability of the column to withstand the superimposed weight with a varying degree of pain. Mobility and pain declined together and the latter ceased when anchylosis was established. The bones exhibited sclerosis with atrophy and absorption under pressure. Active medication was required with protection and immobilization. Every effort should be made to secure anchylosis, if it was inevitable, in the best possible position of the spine.

Dr. C. C. Ransom would make a clear distinction between spinal rheumatoid arthritis and rheumatic diseases of the spine. The latter affection, when limited to the spine, was comparatively rare and usually affected the lower dorsal and upper cervical regions, rarely exhibiting cartilaginous and osseous changes, and fibrous anchylosis due to ligamentous changes only in very exceptional patients and in those of advanced years. Rheumatoid arthritis of the spine, on the other hand, exhibited muscular atrophy, deposits about the joints and characteristic deformaties of other affected joints. In its treatment the classic remedies used in rheumatism had little if any effect, and with the exception of iodide of potassium, were apt to do more harm than good. In the treatment of rheumatism of the spine, however, the methods usually employed in rheumatism would be found to give good results. Specific remedies, such as salicylic compounds, iodide of potassium and colchicum might be used in the active stage and to relieve distressing symptoms. But to cure the trouble our dependence must be on general tonic and hygienic treatment, including iron, arsenic, the hypophosphites, hydrotherapy, massage, and when pain on motion had sufficiently subsided, proper forms of active exercise regularly carried out.

Dr. Townsend could recall but one or two cases in which the diagnosis of rheumatic affection of the spine could be clearly made out. Rheumatic pains affecting the spinal muscles were sufficiently common.

Dr. Sayre recalled a case which at first seemed to be tubercular inflammation of the cervical spine. There were pain and limited motion. A support enabled the patient to move without pain. Different diagnoses were made by a number of observers. Syphilis was eliminated. Atrophy and an inelastic condition of the muscles suggested a nervous origin of the trouble. The inflammation progressed and a few years later the entire spine was rigid. Stiffness of the costo-sternal and costo-vertebral joints interfered with full respiration, and other joints were involved. There had been some relief from gentle massage.

Dr. Myers said that the diagnosis of malignant disease of the spine was readily made in cases in which a malignant growth had already occurred in another part of the body, but if the primary manifestation was in the spine the affection might be overlooked. The growth might infiltrate the bodies, transverse processes, laminæ and spines or occur externally on the sides of the vertebræ.

Dr. V. P. Gibney said that this affection was very interesting to the general practitioner and to the specialist because of the peculiar symptoms and the difficulty of making the diagnosis, which, however, could as a rule be made early. The severity of the symptoms was so great and the pain in certain regions was so acute and persistent, that their significance could generally be recognized. Another point was the cicatrix in the mammary region, showing a previous amputation of the breast, a fact which was often concealed by the patient. If this was found, the disease of the spine was undoubtedly malignant.

Dr. C. N. Dowd referred to the tendency of breast cancer to form spinal metastases. In twenty-nine cases there were five in which this had occurred. The suffering was intense. The possibility of such a metastasis was a strong argument for early operation on the primary growth.

The President said that primary malignant disease of the spine was rare, but its appearance secondarily was not uncommon. In the latter case, if the pain was severe, the diagnosis could generally be made. The diagnosis of primary new growth in the spine was more difficult, but could usually be made by watching the course of the case. There was usually great pain and often paraplegia, so that the name *paraplegia dolorosa* had been applied to the disease. There was no pain more severe. If the patient developed pain in the spine after having had a tumor removed, there was probably a location of the disease in the spine, although the surgeon who operated might not want to admit it.

DR. MYERS said that gonorrhœal inflammation of the spine was a very rare affection and that typhoid spine was more common, depending on an inflammation of the periosteum or other fibrous structures. Infectious inflammations of the spine followed attacks of the infectious diseases of childhood. He gave histories of two cases, in which wry-neck, not differing from that of vertebral caries had disappeared without sequel after treatment by the application of a brace with a chin-piece.

DR. SAYRE had seen only one case of gonorrhœal disease of the spine. The history was clear and there were pain and disability of the spine, a slight kyphos and stiffness in the other joints.

THE PRESIDENT said that several such cases had come under his observation which had been supposed to be tubercular disease of the spine. In one the patient suddenly fell back in bed and expired.

DR. MYERS said that traumatic inflammation of the spine was seen in adults more often than in children and was usually the result of considerable violence. The kyphos was not often significant. An abscess sometimes followed and the symptoms might include pain in the spine, not anteriorly, great disability, muscular twitching and exaggerated knee reflex. The prognosis was good except in severe injuries. Fracture should be carefully protected and for a long time.

DR. LLOYD said that the violence might cause tearing of the muscles and possibly an infected inflammatory area with rigidity, but without kyphosis. There might be paralysis below the point of injury without rectal and vesical symptoms and in some cases an abscess with finally good recovery. In other cases a greater degree of violence produced partial dislocation or fracture, with or without kyphosis.

Dr. G. R. Elliott said that when we had a distinct lesion of the spine, such as fracture of the vertebræ, laceration of the ligaments, extra-dural hemorrhage, the cord itself escaping, together with clearly demonstrable object signs, such as possible bone changes, muscular atrophy, some motor paralysis and distinct electrical degenerative reactions, we had a condition far from common and one very much more valuable in a medico-legal sense than the neurotic symptom-group called *railway spine*, which, when standing alone and unsupported by objective signs, admits of endless neurological speculation.

Dr. Townsend said that instances of non-tubercular inflammation of the spine were extremely rare in comparison with the vast number of tubercular cases which came under observation and treatment.

Dr. A. B. Judson said that when a patient complained of spinal pain and spinal disability, the first thought was to exclude Potts' disease. It was strange that these symptoms were not found in a condition so closely simulating fracture or the worse type of traumatism. On the other hand, in the non-tubercular inflammations, as a rule, spinal disability and pain were early and prominent symptoms, marking a frank and sometimes alarming onset, very different from the long continued and insidious approach of vertebral caries.

Dr. Myers said that if a patient were curable within a year, the diagnosis of tuberculous spondylitis should be reconsidered. From a medico-legal standpoint it was important to remember that a considerable number of chronic and increasing kyphoses were not tubercular in their origin and that such disabilities should not be rated so high in awarding damages as those which were tubercular. In life insurance, also, applicants with non-tubercular impairment of the spine should have a more favorable consideration than those whose disability had a tubercular origin.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Meeting of February 8, 1898.

FREDERICK A. PACKARD, M.D., PRESIDENT.

DR. WILLIAM OSLER read a paper upon *Dilatation of the Colon*, also one upon *Absence of the Abdominal Muscles.*

DR. J. P. CROZER GRIFFITH—I was struck in reading Treves' paper by the way in which he speaks of dilatation of the colon. He divides it into two classes: First, the dilatation beginning in adult life—and of this class he says that probably very few, if any, of the reported cases are idiopathic; second, the dilatation which is probably congenital, or at least begins very early, and of this he says that still fewer are idiopathic. According to this there would seem to be no such thing as idiopathic dilatation of the colon. I think probably the majority of cases reported are not idiopathic in the true sense of the term, yet there seems to be evidence that certain cases really do belong to this category. In these the only cause for the constipation, which is such a persistent sympton, is the fact that the colon is dilated and has been unable to expel the fecal matter, and no cause for this dilatation can be discovered, even *post-mortem.* I came across a case of this nature a year ago, shortly after Martin published his interesting review in the *Montreal Medical Journal.* This case was entirely typical of the disease, and even at the autopsy no cause for the condition was found. I have seen also one other case which appears to be similar. Here are the photographs of the two children.

DR. J. MADISON TAYLOR.—I speak with some diffidence of a case which came under my observation at the Children's Hospital some years ago, which puzzled us a good deal at the time, and had points of marked similarity to those described. It subsequently came under the care of Dr. Fussel, of Manayunk, who tells me that it died, about two years ago, of an entero colitis. There was no *post-mortem*, but Dr. Fussell was of the opinion that the cause of death was atrophy of the intestinal walls, which gave rise to the extreme distention. This was a baby seventeen months old when I first saw it; nursed by the mother, a perfectly vigorous, healthy woman. The abdomen of the child had been noticed to be very much enlarged as far back as the mother could remember, and when I saw it, it was excessively tympanitic. The lower part was dull on percussion and felt boggy, suggesting accumulated fæces; this, after a time, was relieved in a great measure, although never completely, even after the bowels, from various devices, had been pretty thoroughly emptied. In the left hypochondriac region there was an enormous dilatation, distinctly gaseous. The patient lived in the extreme northern limits of the city, and came to the Dispensary only at long intervals, which prevented our employing any very systematic or continuous measures. Attempts to wash out the bowels were met with great difficulty. A soft catheter could be introduced only a short way at first, after various attempts on our part, while the child was in the Trendelenburg position. After many efforts it entered the bowels, but never satisfactorily. Faradic electricity was repeatedly used to stimulate the intestinal walls, but with little success. The interesting feature was the fact that there was relatively little deterioration of health, and fair evacuation of the bowels could be secured occasionally spontaneously. We were able to satisfy ourselves that there was no abdominal tumor other than the fecal accumulation. I am satisfied that the condition was a congenital dilatation of the colon.

Dr. William Osler.—The notes are somewhat imperfect, but as sent me they state that there was a constriction at lower part of the sigmoid flexure, and just above it there was a concretion; there is no mention of the size of the concretion. The possibility is that the concretion came later. Two of my cases are really of interest in reference to the statement made by Mr. Treves that all of the congenital and early cases are associated with narrowing of the gut. In the boy operated on, who recovered, Dr. Halsted made a very careful inspection of the entire gut, and I know there was no constriction at the lower portion of the colon or the rectum. In that case, on the operating table, the ascending colon measured eighteen inches in circumference, and an enormous amount of fæces escaped when the opening was made. I feel sure that there was in this instance, no firm, strong constriction narrowing the gut, as in the case reported by Mr. Treves, and as in my second case. The fourth case, the boy admitted in '92, is really of great interest in connection with the possibility of recovery of certain of these cases. I think his case came, as some of the cases in children do, from obstinate constipation. He had an enormously distended abdomen. It all disappeared, and when he came in a second time with enormous enlargement of the abdomen, I remember our astonishment in finding it was liquid and not gas. We drew off the fluid, and six or seven months later, at the autopsy, the peritoneum was found thickened; there was no tuberculosis, and the colon was not distended, but was thickened, and there was some changes in the mucous surface. Its size was altogether different from that when first in the hospital. I think that is a hopeful case for prognosis in certain of the instances which, in all probability, follow constipation. In such cases as that to which Mr. Treves reports, and the five or six cases which Dr. Martin puts in his first group in which the symptoms date from birth, I think in all probability, the earlier the surgeon is called in the better, and the very satisfactory result following Mr. Treves' operation is exceedingly encouraging.

Dr. Robert G. LeConte reported a case of *Gangrene of Leg* in an infant four weeks old, with amputation and recovery. The patient was exhibited. The infant was born at full term from healthy parents. Five days after birth, symptoms of gastro-intestinal disturbance appeared. On the tenth day onychia of the fingers with yellow crusts formed. The cord separated on the twelfth day, leaving a broad red circle of inflammation on the abdominal wall. On the fourteenth day, both legs from the hip down became blue. By the twenty-first day, the cyanosis of the right leg was clearing up, while the left leg became darker and swollen. Five days later, small blebs appeared on the left leg with a very fœtid odor. In the right leg the cyanosis had disappeared, except for a small spot on the buttock. On the thirty-second day, a line of demarcation had formed over the scar of the left tibia with separation of the tissues. Amputation was performed at the middle of the thigh, the femoral ligated, no other vessels bleeding. There was no shock after operation, and the recovery was uneventful.

Dr. Burton K. Chance read a paper entitled *Affections of the Conjunctive and Cornea Observed in the Acute Infectious Diseases of Children*, in which he stated that the catarrhal symptoms so frequently noted in the eyes during the course of the infectious diseases, are local manifestations of the general disease, and their presence may be of such prominence as to react upon the health of the child, and, if such symptoms are not treated there may esult permanent damage to the ocular structures interfering with the vision in after-life. The author described the special symptoms which occur in smallpox, measles, scarlatine, pertussis, influenza and typhoid fever, and laid stress upon the development and results of phlyctenular ophthalmia as commonly produced during the course of these diseases, and prolonged during convalescence. He then urged that early and prompt treatment be instituted—there should be frequent cleansing of the conjunctival sac daily, using warm, bland solutions, and set forth the necessity of strict hygienic regulations, together with the maintenances of tonic and alterative treatment throughout the entire period of convalescence. In thus caring for the eyes he is of the opinion that the high percentage of impaired eyesight resulting from opacities and distortions will be greatly reduced.

DR. F. PRENDERGAST.—I am particularly interested in these cases because I now have about sixty cases of measles at the St. John's Orphan Asylum. Asepsis of the conjunctiva is impossible. The nearest thing to this we can do is to flush the conjunctiva with a mild bichloride solution, 1 to 5,000; strong bichloride solution would injure the cornea and epithlium. Dr. Chance's idea of treatment in these cases is excellent. The yellow oxide of mercury about the lids, and warm boracic acid wash are very grateful, but I would advise all to be extremely careful of bichloride of mercury. If used too strong it simply makes the soil more suitable for bacteria which spread to the layers of the cornea. Since the conjunctiva is exposed to the atmosphere and dust, wiped with dirty cloths and hands, and washed in filthy water, is one of the best soils we have in the whole body for the cultivation of bacteria. Even the bacillus tuberculosis, the gonococcus and the diphtheritic bacillus have been present in many cases. The proper thing in these cases should be to thoroughly flush with warm boracic solution, as my own belief is that normal salt solution or warm distilled water will do as much good as anything. The operators of the present day who are doing cataract operations, simply clean the cul-de-sac as best as they possibly can. They open the eye with fear and trembling because they have good soil for bacteria.

DR. GEORGE WOODWARD read a paper on *A Clinical Method for the Estimation of Breast-Milk Proteids.*

Two "milk burettes," each containing five c.c. of milk, are subjected to a temperature warm enough to rapidly sour the milk, and allowed to remain in this warmth until a distinct precipitation can be seen. The burettes are then cooled in water, the milk serum withdrawn into two graduated tubes, ten c.c. of Esbach solution added, the tube shaken, centrifugated until the reading is constant. This reading expresses in percentage the amount of total proteids in the milk.

The most satisfactory "milk burettes" have a glass pinch cock or valve, and a narrow exit tube about one inch long. A temperature of 95° Fahrenheit to 100° Fahrenheit, is the most rapidly effective to produce fermentation. This is conveniently obtained by placing the tubes in a burette stand, and the stand in contact with a radiator or steampipe leading to a radiator.

The time required to obtain a distinct precipitation of casein is from eighteen to twenty-four hours. The milk has then separated into an upper layer or viscid yellow fat, and a lower layer of fluid milk along the sides of the tube, and at the bottom is a granular precipitate.

The cooling of the milk increases the viscidity of the fat and facilitates its separation from the milk serum. The milk serum is received into fifteen c.c. graduated tubes, the solution of picric and citric acid added up to the fifteen c.c. mark, the mixture stirred with a glass rod and placed in a hand centrifuge.

The amount of centrifugation required is in direct proportion to the care used in separating the fat. If fermentation be watched, and the separation made as soon as the casein precipitate is distinctly present the centrifugation to a constant reading may be quickly accomplished.

Twelve analyses by centrifuge, each checked by the Kjeldahl method as adopted by the Association of Official Agricultural Chemists, showed close correspondence of results. In one case the Kjeldahl result was 0.65 per cent. below that given by the centrifuge, in a second case 0.3 per cent. In all the other cases the difference was less than 0.25 per cent.

Dr. J. P. Crozer Griffith.—I think only those who have been particularly interested in this question of the estimation of the percentages of the ingredients of milk realize what a particularly valuable contribution this is to our medical knowledge. It is the first step toward giving the ordinary practitioner some means of determining for himself how rich in proteid material the mother's milk may be. Heretofore, only those living in cities have had any means whatever of having examinations made, and even then it was beyond the power of those whose patients were not well-to-do, unless there was someone who had been as kind as Dr. Woodward in his offer to do this work without charge. Some months ago I talked to Dr. Woodward about this matter of a ready means for estimating the proteids, and learned that he was working at it, so I have no doubt this is the result of long experimentation and thought, and I, for one, am very deeply grateful to him. He will, it is to be hoped, go on and apply this method to the estimation of the proteids in cow's milk. There seems no reason why the same procedure should not answer. If it does it seems that any one of us will be able to tell with the centrifuge whether the cow's milk we receive is properly rich in proteid material, just as we now can with regard to the fat.

A Pathogenic Bacillus in Broncho-pneumonia.—Wright and Mallory (*Zeitschrift für Hygiene.*) describe a pathogenic bacillus found in the lungs of a man who, three weeks after diphtheria, died with severe broncho-pneumonia. The necropsy showed also hepatic abscess, due apparently to old appendicitis. In addition to the Klebs-Loeffler bacillus, which was still present in the bronchi, an encapsuled bacillus was found in the secretion from the bronchi, and in the alveoli of the lungs in great numbers. It was easily cultivated on blood serum, agar-agar, gelatine, and potato; the pure cultivation injected into mice subcutaneously, and into the veins of the rabbit it caused death from septicæmia in twenty-four hours; injected into the trachea of the rabbit it caused death from septicæmia in five days; no definite pneumonia was produced. The bacillus is two or three times as long as it is thick, has the ends rounded, and is enclosed in a definite capsule, which is seen in cultivations; it is not mobile; shows no tendency to formation of sporses; and stains well by Gram's method. The organism belongs to the same group as Friedländier's pneumonia bacillus, though differing in several points from that bacillus. It is probably identical with some already described, perhaps with that described by Fasching in the nasal secretion of influenza.—*British Medical Journal.*

Current Literature.

HYGIENE AND THERAPEUTICS.

Northrup, W. P.: An Epidemic of Measles in the New York Foundling Hospital. (*The Medical News.* 1898. Vol. lxxi., No. 26.)

No epidemic disease inspires more dread in children's hospitals than does measles; its contagiousness is greatest, its complications most constant, its sequelæ gravest, and its mortality highest. Two years ago the Medical Board of the Foundling Hospital set itself the task of keeping measles out of the institution. Its methods were so far successful that no case occurred within doors or was brought in by children returning from the out-door department during a period of sixteen months. At the end of this time, by accident, an infant in the earliest stage of the disease, sojourning in the house one night, started the epidemic which forms the subject of this paper. In its results, this epidemic was by far the most favorable of all ever experienced in the institution; it was widely distributed, least serious in its complications, and least grave in its fatalities; it appeared in every nursery, penetrated every quarantine, attacked children already suffering from whooping-cough, bronchitis, diphtheria, and tuberculosis, infecting all susceptible infants. Though the figures may not impress the practitioner, whose experience is confined to measles occurring in well-nourished children living at home, the hospital physician will appreciate them, and also the steps taken to modify the course of the disease.

Every precaution was taken to avoid grouping, so far as possible, of children in the active stage of the disease. The children's eyes, noses, and mouths were cleansed with boric-acid solution. The rooms were not kept dark, but the beds were so arranged that the eyes were turned away from the bright light and reflecting surfaces.

It was a rule to keep all children in bed, under watchful care, during at least six days from the time the temperature became normal. Special stress was laid upon this regulation, at the same time that mouth cleanliness and ventilation were carefully supervised. Under this routine practice but two patients developed pneumonia. In both the temperature had previously been normal twenty-four hours. The complicating pneumonias developed during the first stage of the disease—the first week.

In all, there were 258 cases and 36 deaths (13.9 per cent.) Of the 258 cases 53 were complicated with broncho-pneumonia (20.5 per cent.) Of these 31 terminated fatally (58 per cent.) Autopsy showed the presence of complicating broncho-pneumonia in 31 of the 36 fatal cases.

It should be remembered that the mortality is from complicated measles occurring in susceptible children, in age from nurslings to "runabouts" four and a half years old, regardless of previous illness or general condition of nutrition.

In many measles epidemics diphtheria, pharyngeal and laryngeal, with subsequent broncho-pneumonia, has been a most pronounced feature. In the one under consideration systematic immunization was practised upon all children not believed to be, by reason of age or location in the hospital, reasonably safe from complicating diphtheria. No nursing babies were immunized—one developed diphtheria. Of those believed to be in danger of contracting this disease 129 were immunized. Some of this number had probably had measles previously; for though fully exposed they did not contract the disease. However, 77 of the number immunized against diphtheria successfully passed through measles without developing this dread complication. In one nursery, considered safe, no cases of diphtheria developed, and yet none of the patients contained in it (13 susceptible) were immunized. This nursery was at the top of the largest building —the administration building—and widely separated from others. In a second nursery, where diphtheria had been occasionally observed, nine children with measles were not immunized, and the third day after the appearance of the rash, four out of the nine had a bloody nasal discharge. Cultures made from this showed the presence of the diphtheria bacillus. It was considered that this nursery would afford a fair control upon the observations in the remainder of the hospital. When the diagnosis of diphtheria was confirmed the four patients mentioned were immediately injected with 2,000 units of antitoxin; the five remaining patients were immunized. No further cases appeared in this nursery, and the four children already having nasal diphtheria recovered.

The immunizing dose of antitoxin employed was 250 units (antitoxin of the New York Board of Health), No antitoxic rash appeared after the employment of this dose. On two occasions a dose of 400 units was employed for purposes of immunization, with the subsequent appearance of urticaria. No local disturbance or constitutional reaction was observed in the cases immunized with 250 antitoxic units. As regards the accepted period of immunity following the injection of the diphtheria serum, it was interesting to note that in two cases, after respectively 31 and 33 days, pharyngeal diphtheria developed. In these, curative doses of the serum were at once administered, and the patients promptly recovered.

Guizol: Treatment of the Rachitis with Chlorhydrate of Ammonium and Salt Baths. (*Rev. Internat. de Med. et de Chirurgie.* Vol. viii., No. 21.)

In studying the nutrition in cases of rachitis, the urine gives two important data: the total quantity of urea and phospheric acid excreted. The urea is invariably diminished, while the phospheric acid is almost double that present in the urine of a healthy infant. Guizol's treatment, therefore, is based upon these facts, and has for its object the increase of the total amount of urea and the lowering of the phospheric acid in quantity. He finds that phospheric acid, glycero-phosphate of lime and intestinal antiseptics have no influence whatever upon the amount of urea and phospheric acid excreted; that large doses of bicarbonate of soda are harmful, as they diminish the former and increase the latter; that bibasic phosphate of lime increases both products, and the total quantity of urine too; but that the chlorhydrate of ammonium together with bicarbonate of soda and salt bath augments the total urea and urine in quantity, while diminishing the elimination of phospheric acid. The dose is twenty centigrammes in twenty-four hours to a child three and a half years old.

The explanation of the beneficial action on the osseous system is to be found in the fact that the urea in the blood contributes to the formation of osseine, and the ammonia salt is transformed into urea in the liver, determining much activity of assimilation.

Zangger: Creosote in the Gastro-Enteritis of Nurselings. (*Rev. Internat. de Med. et de Chirurgie.* Vol. viii., No. 16.)

In recent cases, vomiting ceases and diarrhœa is arrested after three or four doses of the pure creosote, given in water and alcohol; generally cure results in two or three days. Cases of longer standing do not respond as quickly to the treatment. The good results are to be attributed to the anti-fermentative action of the creosote.

Wilcox, Reynold W.: The Uses of Strophanthus. (*American Journal of Medical Sciences.* 1897. Vol. cxiii., No. 5.)

The advantages which strophanthus possesses over digitalis may be summed up as (1) greater rapidity, modifying pulse-rate within an hour; (2) absence of vaso-constrictor effects; (3) greater diuretic power; (4) no disturbance of digestion; (5) absence of cumulation; (6) greater value in children; and (7) greater safety in the aged.

When we consider that although digitalis has been in use since 1875 in the treatment of cardiac disease, it is only within the past ten years that it may be truly said that its administration was productive of uniformly excellent results. That this is so is undoubtedly due to the fact that the greatest danger from its use—namely, the marked vaso-constriction—has been to a considerable degree obviated by the common practice of the coincident administration of a nitrite. Strophanthus was first brought to the notice of the French Academy of Medicine in 1865, but its first practical demonstration as a valuable heart remedy came twenty years later, when Frazer published the results of his long-continued and patient researches. With the wider and more rapid dissemination of knowledge which obtains at the present day we may hope that within a comparatively few years we may have strophanthus used as carefully as is digitalis to-day. That it possesses distinct advantages over the latter drug is undoubted, and it is equally certain that it is free from the greatest danger which the use of digitalis entails—namely, vaso-constriction.

We may say that success in the administration of strophanthus requires: 1. An active, well-made preparation from a reliable source. 2. Avoidance of its use in fully or over-compensated hearts, in those which present advanced muscular degeneration or mechanical defects of high degree. 3. The use of not too large or too frequently repeated doses. From my own observation, the dose of five drops of a reliable tincture three or possibly four times a day is sufficient.

In conclusion, I believe that, considering the limitations just enumerated, strophanthus is the drug of choice in:

1. All cases in which we wish to establish compensation.
2. All cases of arterial degeneration in which a remedy which causes more energetic cardiac contractions is required.
3. All cases of cardiac disease where diuresis is necessary.
4. All cases of weak or irritable hearts.
5. All cases of cardiac disease in childhood or old age.

SURGERY.

Bacon, Joseph E.: Inguinal Colotomy in an Infant. (*Mathews' Quarterly Journal.* 1897. Vol. iv., No. 16.)

The author was called to see an infant forty-eight hours old, born with imperforate anus. A slight incision had already been made by the attending physician and the child was in an extreme condition. The incision was extended to the depth of an inch and a half without finding the intestine. Realizing the danger of dissecting beyond the point where one could see the point of the knife, he determined not to run any risk in that method, not knowing where the end of the intestine would be found, and therefore decided upon an immediate inguinal colotomy that would give temporary relief to the child, or permanent relief if so desired after further searching at some future time for the end of the intestine. It was three months after this colotomy was made at the time of the report. The child made wonderful progress, and was a large, healthy, fat boy.

A loop of intestine was not withdrawn to make a permanent colotomy, as the author intends later to probe with a bulb-pointed director through the colotomy wound into the colon and thereby the lower end of the colon, and determine whether it would be practicable to try and make a deeper incision through the perineum and bring the intestine into its normal position. He purposely recommended not withdrawing a loop of the intestine, but to only sew the edges of the colon, to the skin, thereby leaving a fecal fistula that will prolong the child's life and will close itself, or can easily be closed providing the intestine is brought down later and the anus made in the normal position. This will not require for its closure a second laparotomy with its accompanying danger, as the tendency will be for the fistulous tract to close itself, and the difficulty will be to keep it open long enough if the patient's general health demands that a permanent operation be postponed for some time.

The statistics of operations for imperforate anus are very discouraging, as it has been a rule for most of these operations to terminate fatally. The statistics of colotomy upon these young infants show that the operations have almost been as fatal. The author is convinced that the most of the cases of these young infants that have died from colotomy, and have died from operations through the perineum in trying to find the intestine, have been killed through meddlesome or so-called courageous surgery. He believes that the thing to do in such cases, where there is not either a bulging of the perineum denoting that the intestine came down very nearly to the normal outlet or after making an incision in the normal position in front of the coccyx only to such an extent as you can yet see and know positively what tissues you are cutting, and not opening up blindly into the peritoneal cavity, that the proper thing to do in all such cases is to make a small inguinal incision and sew the wall of the colon to the skin and make a temporary fecal fistula. Thus, after the patient has become several months older and much more capable of standing a thorough operation, we can by probing through this fistula into the colon determine whether the lower end of this intestine can possibly be drawn down and placed in the normal position; if not, the cicatrix about the fecal fistula can be removed and the fistula enlarged into a permanent inguinal colotomy with the very minimum of risk, and thereby we will be able to reduce the mortality of these cases from something like ninety-eight per cent. to a very low and favorable percentage.

Bradford, E. H.: Congenital Dislocation of the Hip. *American Journal of the Medical Sciences*. 1897. Vol. cxiv., No. 5.)

In this admirable and extended article the author considers the subject in great detail, and in summarizing, draws the following conclusions:

Congenital dislocation of the hip is a dislocation of the head of the femur upward, occurring in uterine life.

A shallow triangular acetabulum results.

A diminution of the angle between the neck and the shaft takes place and there is a twist of the neck.

The capsule is altered by being stretched, thickened, first dilated in its upper portion, stretched across the acetabulum in the lower portion, and constricted at the rim of the acetabulum.

The most important obstacle to reduction lies in the attachment of the capsule displaced and thickened to the ilium above and around the front of the acetabulum, and to the anterior surface of the femur, especially to the lesser trochanter.

The shortened pelvi-femoral muscles also offer a resistance to reduction, and with the contracted capsule will prevent reduction or cause relapse.

Obstacles to the reduction of deformity also lie in the shape of the head and in the shallowness of the acetabulum.

Traction in a straight direction cannot effect a cure.

Traction in strong abduction with downward pressure upon the head may bring about reduction.

In children over two and under five years—in some instances between five and seven years—under an anæsthetic, forcible reduction can be successfully used. This can only be accomplished if the head of the femur is forced into and through the capsular neck dilating it, into the acetabulum, and only after the capsular attachments abducting and flexing the limb are thoroughly stretched.

Successful reduction is always accompanied by an audible movement of the head of the femur into the capsule; bandages and fixation apparatus are to be used to prevent relapse, until the contracted tissues are sufficiently long and the pelvi-trochanteric muscles have regained their power to a sufficient extent that a recurrence of the dislocation is impossible.

In cases older than seven and under fifteen years, and in some cases between five and seven years, an open incision is necessary for reduction of the dislocation.

The line of incision following the outer edge of the tensor vaginæ femoris is the preferable incision.

Inability to reduce the head is due to capsular attachments from the acetabulum and ilium to the femur, which have not yet been divided or stretched.

In old adolescents, or adults, the operation where extensive alterations in the bones takes place, operative reduction has not been successful.

The use of corsets and traction splints may improve the attitude, but cannot cure.

Paget: Six Cases of Strangulated Hernia in Infancy or Early Childhood. (*West London Medical Journal,* No. iv. 1897. *Therapeutic Gazette.* 1897. Vol. xxi., No. 7.)

In a paper with this title the author reaches the following conclusions:

(1) In three cases the hernia seems to have become strangulated while the child was at rest, either in bed, or in its perambulator, or lying on its back.

(2) In two cases, though the bowel had not long been strangulated and was but slightly injured, yet the scrotom was already congested or inflamed.

(3) In three cases, after division of the stricture, reduction of the bowel was certainly made easier by holding up the child's feet, so that only its head and shoulders rested on the table.

(4) In more than one case the operation was made difficult by the extreme thinness of the sac--a mere film of membrane—and by the absence of the fluid from it.

(5) In most of the cases the bowels acted within a few hours of the operation, and in two of them there was a slight diarrhœa for a few days.

(6) The writer did not do a radical cure in these cases, being anxious not to prolong the operations, and thinking that the tissues, in such very young children, would heal firmly without it; but the relapse of the hernia in Case 3 and the breaking down of the wound in Case 4 seem to show clearly that in all these cases we ought to tie the sac and close the ring.

(7) The breaking down of the wound in this fourth case is somewhat hard to understand. A whole week had passed since the operation; the stitches had not been touched; the wound had been dressed that morning, and then looked firmly healed. In the evening it broke down along its whole length, its edges curling inward like the edges of a wound in the scrotum. He is having sections made of the skin over the inguinal canal in young children, to see if it contains unstriped muscular fibres like the tunica dartos; it is hard to see what else can have made the edges of the wound thus give way and turn inward.

(8) In the last case the hernia was certainly reduced when the child was admitted, for the bowels acted freely for ten days. The crotum remained much thickened and inflamed, and thus the relapse of the hernia was not at once noticed.

Thus these six cases seem to show that there are some points of special interest in strangulated hernia in infants. It is not unlikely to occur while the infant is at rest, and in infants vomiting it is so common that a strangulated hernia may easily be overlooked, as happened in three fatal cases among those collected from various sources by Mr. Marsh. The scrotum may be congested or inflamed very early, even though the bowel be but slightly damaged. Especial care is necessary in the operation on account of the extreme thinness of the sac and the very small quantity of fluid in it. The return of the bowel after the division of the stricture may be helped by lifting the child's feet. The bowels are likely to act soon after the operation, and to be somewhat relaxed after a few days. In every case a radical cure should be made at the time of the operation, unless the child is so collapsed that it is dangerous to prolong the operation.

McBride, P.: The Diagnosis of Naso-Pharyngeal Adenoids. (*The Edinburgh Medical Journal.* 1897. Vol. lxiii., No. 503.)

Diagnosis depends chiefly upon objective data. When the author suspects the existence of adenoids, it is his custom to attempt posterior rhinoscopy, which can be carried out in a very large proportion of young patients, if only they be not alarmed by unnecessary brusqueness of manner or action. In a well-marked case, the more or less ridged adenoid cushion, or less commonly irregular pendulous masses, of pink color, and often covered with mucus, may be seen obscuring the upper part of the nasal septum. Sometimes the hypertrophy is so pronounced that the space above the palate has become almost or quite obliterated. Again, occasionally only a small amount of adenoid tissue is seen between the orifices of the eustachian tubes. When the hypertrophy is of this nature, it is very important to note whether the tissue forms a small prominent elevation in the center, allowing a free interval between it and the tubal orifices or not; for should this free interval exist, we may in most cases assume that the growth does not affect the hearing, and *vica versa*. In some cases a very small hypertrophy is so evidently packed between the prominent tubes, that pressure upon them is indicated upon rhinoscopic examination.

Sometimes the hypertrophied pharyngeal tonsil can be seen by anterior rhinoscopy, but we have not generally found this method of much value, excepting that it enables the observer to verify the absence of any obstructing lesion anteriorly.

Examination of the pharynx alone sometimes enables the experienced observer to suspect adenoids, as its posterior wall is often covered with smooth lymphoid nodules, nearly as large as half a pea. These differ from the granules often seen in adults, both in their larger size and in their paler color.

A certain number of cases of post-nasal adenoids are associated with hypertrophy of the faucial tonsils, and where the latter are enlarged in children, the possibility of the presence of naso-pharyngeal adenoids should not be lost sight of. The author's statistics do not point to this association being a very large one, as, out of 427 cases of adenoid hypertrophy in children, only 126, or a percentage of 29.6, were found to have hypertrophied faucial tonsils.

While rhinoscopy can generally be employed, more definite information can be obtained from palpation. When the pharyngeal tonsil is seen to be very large, it will be obviously unnecessary to subject the patient to the discomfort of digital examination; but when it appears small, and yet marked symptoms are complained of, it is better to introduce the finger, as we may then often detect that the amount of tissue present is greater than we had been led to expect from examination with the mirror alone.

When it is desired to palpate the naso-pharynx, the operator stands on the patient's right, passes his left arm round the neck, and introduces the forefinger of the left hand, guarded by a towel, into the left angle of the mouth. In this way full command of the jaw is obtained, for, if necessary, the cheek can be pushed between the molars, and so biting is made impossible. The index finger of the right hand is now introduced, and passed with a rapid sweep over the vault of the pharynx. The feeling of adenoid hypertrophy is very characteristic. The finger impinges upon a soft—almost gelatinous—tissue, into which it readily sinks, and which it as readily tears. On withdrawing it, however gentle has been the manipulation, the tip is almost certain to be stained with blood. In a few cases the mass is felt to be considerably harder; and this is what we should expect as a result of our pathological investigations.

From fibrous tumors the following points serve to distinguish adenoids, viz. (1) on rhinoscopic examination the latter are not sharply defined, (2) on palpation they feel soft.

We have met with sarcoma of the naso-pharynx which gave to the examining finger a sensation quite like adenoid hypertrophy. Malignant tumors in this situation are not common in any class of patients, and least so in children; they are usually associated, when soft, with frequent and violent hemorrhages, while other grave symptoms speedily ensue.

The practical deduction to be drawn from these facts is, that we cannot say in any given case that a growth may be satisfactorily left to disappear *per se*. It may or it may not do so at some early period, but because a patient is approaching puberty or adult life, it does not follow that the adenoid hypertrophy will in a short time cease to exist. Such growths do, in certain cases, disappear at puberty, but it is quite possible that here a purely physical, as opposed to a purely histological, explanation may be called to our aid. Obviously, in the small naso-pharynx of the child the growth may entirely fill the space, while, as adult life is approached, a free space will be left between adenoid hypertrophy and palate. In the former case, each respiration will exercise suction upon the mass; while in the latter, this physical effect will be much diminished, if not quite absent.

Histological examination leads us to draw the following conclusions:

1. That the cilated epithelium may be converted into the stratified squamous variety, and the latter become much thickened, as the result of the intermittent pressure to which the hypertrophy is subjected.
2. That this change tends to occur in the smaller naso-pharynx of the young child.
3. That the cilia may become destroyed over large areas, and the epithelium thinned to a varying degree; and, further, that emigration of leucocytes is not general.
4. That there is a tendency to an over-growth of fibrous tissue, which commences in and around the blood vessels, and gradually invading the lymphoid tissue, leads to shrinking of the growth.
5. That this process is not confined to the period at or after puberty, but occurs also in very young children, and is, therefore, independent of the age of the patient.

MEDICINE.

Fort, Samuel J.: Care and Training of the Feeble-Minded. (*Maryland Medical Journal.* 1897. Vol. xxxvii., No. 2.)

The author as superintendent of the Font Hill Institution for Feeble-Minded, has given much attention to their training and care. He asserts that out of 100,000 feeble-minded persons in the United States, not more than 4 per cent. are receiving proper instruction or training, and certainly not more than 10 per cent. receiving instruction or training of any kind.

This matter of mentally deficient children in the public schools of the United States is not receiving the attention it should; and no one realizes the injury done to schools where these children are on the rolls more than those who are conversant with the peculiar needs of such individuals and thoroughly posted as to the handicap imposed upon the teachers and their normal charges by their presence.

The first reference to a class of children denominated as "incorrigibles and habitual truants" is that in the Annual Report of the Commissioner of Education, in the issue of 1887-88. In those States having compulsory attendance laws it is found that large numbers of children are enrolled whose environment has brought about a distaste for restraint and disregard for authority; and while all public schools have to contend with a greater or less number of such children, when forced to attend, the numbers of those who take little or no interest in their work and prove hindrances to the advance of others is largely increased. Says the commissioner: "How to manage such children is one of the gravest questions with which school men have to deal. They must not be excluded from the school entirely, but their influence tends to demoralize better disposed scholars if instructed in the regular schools. They should not be committed to reformatories or other institutions for criminals, for they are not criminals, and association with vicious characters can only prove detrimental to them.". "The establishment of 'truant schools' under the management of men peculiarly fitted for such work seems to be the most satisfactory means of dealing with such incorrigibles."

Results of existing "truant schools," as given in the above report by their superintending officials, seem to prove the efficacy of the remedy. It would be interesting if the results of a competent medical examination of these "incorrigibles and habitual truants" could have been appended, for, no doubt, a very large percentage would show the stigmata of degeneracy or defective mentality.

It would, therefore, appear that due provision must be made for life care of the feeble-minded, and, if this be true, we must decide how best to prepare the children to help themselves, the youth and adults to add something to the general store. It is clear that mere mental training has no bearing upon this ability to earn. That is, we have no reason to believe that the young man or woman who develops most mentally will be *a priori* the greatest earner. The institution of the future will deal with the economic practical training that will prepare its inmates to become self-supporting, and this can only be done through the shops. The farm must of necessity be an integral part of any institution where a large number are to be provided for, but farming must be only a method by which the muscular elements of the inmates are to be employed.

It is not intended to make a person afflicted mentally a prisoner at hard labor; he is taught to work because it is wrong to be idle, and periods of relaxation and recreation must be provided and receive due importance in the schedule of daily life.

No system of training that embraces the care of the feeble-minded is complete without due provision for the well-being of the physical side of the problem, and the best results naturally follow where the physical training begins early in life. All of this class are not physically deficient, but few, if any, have the coördinate power that is apparent where the sensory and motor endowment is more nearly normal. The shambling gait, the accommodative power of the eye that estimates distance, size and direction, may be developed by appropriate exercise, and the hearing ears that hear not may also come to a greater degree of usefulness through the agency of music directing systematized movement.

1. That the State owes its mental defectives not only proper care and training, but life guardianship.

2. That early recognition of mental deficiency would tend to increase the chances of improvement under proper training; hence, measures should be taken to submit so-called "incorrigibles," "truants," and "juvenile delinquents," as well as the more docile children of public schools, to physical examination by medical experts; and, upon their recommendation, those showing signs of mental and moral waywardness, or actual mental deficiency, should be sent to schools especially equipped for their benefit.

3. That our normal schools should make the study of training backward and mentally deficient children a compulsory and thorough course, that teachers of the public schools may be better able to coöperate with the medical examiner in detecting

signs of mental weakness, and thus give a chance for improvement at an early age.

4. That manual training in properly equipped shops should occupy at least one-third of the schedule time of school work, for those competent to receive such instruction, and where outdoor employment is done, it should be made as attractive as possible.

5. That life-care of the imbecile or feeble-minded of all grades by the State in properly equipped and supervised institutions, is the only plan by which this class of defectives can be properly controlled.

Shaw, Frank W.: The Diagnostic Value of Pain in Infancy. (*The Brooklyn Medical Journal.* 1897. Vol. xi., No. 10.)

In a paper on conditions of diagnostic value in infancy and childhood, the author refers particularly to pain. He believes that it is in the face that pain finds immediate expression, and when considered in connection with the cry, the origin of the pain can frequently be detected. The cry is always an expression of uneasiness or of some departure from health. When pain is the cause there is a contraction of the features and an uneasy movement of limbs and body. Violent and obstinate crying, sometimes lasting for hours, usually indicates earache, hunger, thirst, the presence of a pin, or an undetected inflammatory rheumatic joint. The restlessness and fretful cry occurring at night in an apparently healthy and well-fed baby, may be due to a hard mattress and be entirely overcome by allowing the child to rest upon a large, soft pillow.

Sudden abdominal pain with vomiting and either constipation or small bloody mucous stools occurring in a previously healthy child, and even without the presence of a distinct abdominal tumor, is not unlikely due to acute intussusception, the absence of blood either before or after intestinal irrigation usually being sufficient to diagnosticate the condition from appendicitis. The cry of thirst is usually constant and is immediately relieved by more liquid. The cry from pain in the head is sharp and sudden. The pain of pneumonia and pleurisy occasions a cry usually during coughing and for a short time afterward, and in pleurisy by pressure on the affected side. Tears are not usually secreted until about the third month. Their suppression during an illness is considered an indication of danger, while their reappearance is thought to be a favorable sign. In most of the fevers and diseases of general excitement, the face will be suffused or red, except when the onset has been sudden and attended with violent shock, when it is paler than usual, and assumes a dead white color. This may occur in pneumonia and bronchitis.

In chronic and enfeebled conditions the face has a waxy hue, and in disorders of digestion a sallow or muddy appearance, associated at times with a distinctly yellow color. Malformations of the lungs or heart result in producing a cyanotic appearance of the face, as does also any interference with respiratory action.

The function of sleep is one which is quickly affected by even a slight departure from health. Slight fever, pressure from a tooth, undigested food, hunger, thirst, or colicky pains are among the simpler causes of this disturbance. Graver conditions result in greater disturbance, so that the range of restlessness may be anything from simple tumbling in bed without waking to complete wakefulness. The predisposition existing in young children to the formation of small acute collections of pus, not always superficially located, results frequently in many nights of wakefulness, pain and crying.

The position which a healthy child assumes during sleep is usually one of quiet on the side or back. In illness this varies greatly according to the disease. In pulmonary disorders it prefers to have the head elevated, and in very young children a frequent change of position is not only grateful but is also of considerable therapeutic value. In acute serous inflammations the position is associated with special flexions peculiar to the disease, a cry resulting from any attempt to change it. An examination of the body and skin reveals not only the presence or absence of fever, moisture, or dryness, but also its color, presence of eruptions, swellings, edema, inflammations, tumors, emaciation or plumpness, spinal irregularities, and diseases of joints.

Jessen: Prolonged Diphtheria. (*Centralbl. f. inn. Med.; British Medical Journal.* No. 1907.) The author refers to the rare cases in which clinical manifestations of the diphtheritic process in the upper air passages persist for a long time. There are but few reported cases of this chronic diphtheria. The author records the following case in a girl, aged 19, who first fell ill with facial erysipelas. This soon got well, but a few days later an ulcerated patch appeared on the right side of the palate. The glands were enlarged, and the temperature was 39.5° C. Virulent diphtheria bacilli were found in the exudation. In the further progress of the case exudation appeared on the posterior pharyngeal wall, and in the nasopharynx and right nostril, but there was no fever and no albuminuria. Four weeks after the onset there was a definite paresis of the right half of the soft palate. The exudation varied its position, but as time went on its intensity diminished. Virulent diphtheria bacilli were constantly found in the exudation. An injection of 1,500 units of diphtheria serum had no effect on the local lesion, and the same was true of local treatment with all the ordinary applications. Lactic acid destroyed the exudation rapidly, but it formed again. Four months after the onset there was an infiltration of the mucous membrane where the exudation had been, and there were still several white patches in the pharynx not easily detached. The exudation was fibrino-purulent in character, and contained diphtheria bacilli. It is interesting to note that notwithstanding the presence during four months of a local lesion containing virulent diphtheria bacilli, there were practically no general symptoms. Some five months after the onset the exudation disappeared, and the infiltration of the mucous membrane began to diminish.

Hermary: Gastro-Intestinal Hemorrhages in the Newly Born. (*Journal de Chir. et de Therap. Infantiles.* 1897. Vol. v., No. 9.)

The cases may be divided into three classes: First, spurious or pulse melæna, in which the vomited blood has been swallowed, either from the mother's breast or from the genital tract during expulsion, or else from a wound in the child's mouth or pharynx. Rare cases have been reported complicated by fracture at the base of the cranium and by lesions of the stomach or intestines. The treatment must be directed to the cause. The second class includes infants with visceral malformations, those who suffered injury during labor, and those inheriting hæmophilia or syphilis. Compression of the child's head or abdomen by a narrow felois or by the forceps may cause intense congestion and even ulceration of the stomach, either by direct pressure or by embolism of the gastric vessels following thrombosis of the umbilical vein due to feeble respiration; or the ulceration may be due to a lesion of the central nervous system. The third class comprises cases of true melæna appearing suddenly and without apparent cause, on the first, second or third day after birth in an apparently healthy infant. Such cases may recover or die; in either case they are not satisfactory as to their explanation, in spite of five theories advanced about them. Thus a local lesion has been assumed to exist, due to over-feeding and consequent congestion, or to the ingestion of toxic substances with the milk; taking cold after birth has been thought to cause an intense internal congestion; many authors explain all grave cases on the ground of an existing syphilis; and, finally, a general infection has been found, due to the bacillus pyogenes aureus, Friedländers' bacillus, Gärtner's bacillus, or the staphylococcus pyogenes aureus.

In these cases the hemorrhages are usually repeated, the general symptoms severe, and convalescence apt to be long and tedious, with gastric intolerance for some time. The prognosis is always grave, and the treatment must include stimulation, careful feeding, ergotine to check hemorrhage, and opiates for relief of pain and restlessness.

Taft, A. Robert: Nephritis in Children. (*Medical News.* 1897. Vol. lxxi., No. 16.)

The author believes that the generally accepted idea that the acute infectious fevers are chiefly responsible for the occurrence of acute nephritis is an erroneous one. He believes that considerable number of cases occur in which it is impossible to obtain a history of acute infection. Among the causes other than infection he believes that the following are the most common:

(1) Improper food and hygienic environment; (2) hereditary syphilis and the inherited tendency to tuberculous disease; (3) inherited weakness of the kidneys. That improper food and hygiene play a prominent part may be assumed from the fact that such affections are much more common among the poor than among the well-to-do. Though the children of the former are more often exposed to infection, the relative number of cases of infective disease occurring in the two classes is not sufficient to account for the difference; while, on the other hand, the dietetic and hygienic conditions are wholly dissimilar. Examples of the affection under consideration are comparatively rare in the rural districts, where the food and environments are better and the parents more healthy. Under such circumstances cases occur in

about equal proportion in the two classes mentioned. These patients have usually presented a history of repeated attacks of diarrhœa, and the fact that the urine frequently contains an excess of indican indicates fermentative processes in the intestinal canal. That abnormal alimentary changes often stand in the relation of cause to effect in the nephritis of children seems to be proved from the fact, that such patients do better on a properly regulated diet than any other form of treatment, the dropsy disappearing, the bowels becoming regular and the urine normal.

The changes in the intestinal contents give rise to a toxin or toxins which act injuriously upon the kidneys, just as do the toxins of the infective fevers. Thompson explains this action by attributing to the poison an effect upon the general health followed by a change in the density of the blood, which in turn modifies the rate of osmosis so that albumin is filtered through the kidneys. A solution of albumin injected into the rectum of a dog will pass almost unaltered through the kidneys. It appears to be a rational conclusion that if an infant is placed upon an albuminous diet, which, of course, it cannot assimilate, that an albuminuria, continuing during the employment of such a diet, will occur.

According to Yeo, the ingestion of too great a quantity of albuminous material necessitates the excretion by the kidneys of so large an amount of nitrogenous waste that a temporary functional hyperemia of the organs in question is excited, and this leads to a slight leakage of albumin from the blood. Thus it is seen, that given an improper diet, to begin with, there exists the first factor in a chain of events which may ultimately lead to organic disease of the kidneys.

Cade: Perforating Ulcer of the Stomach in an Infant Two Months Old. (*Rev. Internat. de Mèd. et de Chirurgie.* Vol. viii. No. 22.)

A bottle-fed infant was attacked by vomiting and green diarrhœa which proved fatal. At the autopsy it was discovered that the posterior cavity of the epiploon had been transformed into a closed cavity by inflammatory adhesions, and that it contained a greenish, acid fluid. It was situated beneath and behind the stomach, above the transverse colon, and in front of the pancreas. High up on the posterior wall of the stomach, near the pyloric end, there was a single round ulcer, as large as a fifty centimes piece, with straight, raised edges. This communicated with the cavity behind the stomach.

The case is of unusual interest because of the great rarity of round gastric ulcers under the age of ten years.

Hauser: Tetany in Childhood.—(*Berliner. Klin. Woch.*, xxx, 782; *Medicine*, 1897. No. 9.)

The author holds that although the study of tetany in the adult stands on a firm basis, this can not be said of our knowledge of tetany in children. Even Strumpell thinks that the peculiar convulsive conditions which occur in little children should not be identified with tetany. The general belief is that the diagnosis of tetany in children must be based upon the same point as in adults. Escherich, in 1890, brought the disease in direct relation with the familiar and frequently observed spasm of the glottis. Loos, Escherich's pupil, went even further, and formulated the following propositions:

1. The tetanic contractures of the extremities are rare in the tetany of children, and are not essential symptoms.
2. Spasm of the glottis, however, is almost a pathognomonic symptom. There is no proof that a laryngo-spasm exists without other symptoms of tetany.
3. Tetany stands in no casual relation whatever to rickets.

The author, from a study of 280 children, comes to the following conclusions:

1. There is a *true tetany* of childhood which follows the exact symptomatology of the tetany of adults, and presents as a most marked symptom the characteristic contractures of the extremities; in addition, there is always found one or the other, and frequently all the symptoms of the so-called *trias*. Aside from the tetanic spasm, the laryngeal and eclamptic spasms play an important, even a prognostic, rôle. The etiology of infantile tetany is not yet clear. It is a fact of experience that tetany rarely attacks perfectly healthy children. Rickets seems to be an important predisposing cause. The direct exciting cause seems often to be gastro-enteric disturbances. This is shown by the frequent concurrence of tetany with acute dyspepsia. The tetany of childhood is a dangerous malady, frequently causing death. Its therapy can, in the present state of our knowledge, be a casual one only in those cases where more or less disturbance of digestion is present. These cases should be treated by a rapid

emptying of the digestive tract by irrigation of the stomach and bowels, the administration of purgatives for the removal of the toxins, and to avoid their new formation, the restriction of the diet to amylaceous food. In all other cases the treatment can only be a dietetic one.

Symptomatically it resolves itself into the administration of narcotics (bromides, chloral hydrate, etc.) for the spasm.

2. Besides this form of tetany characterized by typical contractures of the extremities, there is a so-called *latent form* occurring in infancy. Its diagnosis is based on an increased galvanic irritability of the nerves, which does not occur in this manner in any other disease; the same may be said of Trousseau's phenomenon, if present. A well developed Choostek's sign may support the diagnosis, but it is not convincing in the absence of one of the other symptoms.

3. These cases of latent tetany frequently present as a prominent sympton, severe spasm of the glottis. All cases of spasm of the glottis, particularly those of a severe type, should stimulate us to look for tetanic symptoms, especially for Erb's and Trousseau's signs.

4. The great number of all cases of spasm of the glottis have no connection etiologically with tetany; moreover, some relation must exist between spasm of the glottis and rickets, which is probably more than a mere coincidence.

Caille, Augustus: The Clinical Forms of Diphtheria. (*Post-Graduate.* 1897. Vol. xii., No. 10.)

Diphtheria runs its course as a mild case, a septic case, or a stenosis case but we can never determine at the onset whether a case will progress favorably or terminate fatally. Its characteristics are the formation of a membrane, the presence of fever, indurated lymph nodes in the neck, sepsis, laryngeal stenosis. In membranous rhinitis, and membranous laryngitis, there is usually no fever.

The following clinical varieties will be met with in practice:

1. So-called follicular tonsillitis.
2. Primary diphtheria of tonsils and pharynx.
3. Primary naso-pharyngeal diphtheria.
4. Primary nasal diphtheria; also called membranous rhinitis or diphtheria larvata.
5. Primary laryngeal diphtheria (membranous croup).

6. Diphtheria without membranes (simulating simple angina).
7. Secondary diphtheria, following measles, scarlet fever, pertussis, etc.

Diphtheria without membrane may lead to annoying controversy. A girl of five years affected with a chronic nervous trouble, for which she was under treatment at the Post-Graduate Hospital, became acutely ill, with high temperature, vomiting and mild cerebral symptoms. The author saw her, in consultation, on the third day of her illness, and found her mouth and throat a dusky brown red, bleeding to the touch, temperature 103 degrees, lymph nodes swollen, no false membrane anywhere. A culture-test made at the Post-Graduate laboratory and the Health Board laboratory, proved negative. On the day following a second culture-test showed virulent Klebs-Loeffler bacilli.

Diphtheria which simulates a simple or scarlatinal angina, belongs to this group. Diphtheria in the anterior nares give very few symptoms: a running nose, excoriation at nostrils, snuffles, no fever, is about all. This may go on for weeks, when an extension into the naso-pharynx or larynx is manifest by other additional or subjective symptoms. The Germans call this form diphtheria larvata, and in all such cases a culture will show the true state of affairs. Ordinary thrush (oidium albicans), can hardly be mistaken for diphtheria, but diphtheria of the mouth may be taken for stomatitis, and patches of leptothrix are frequently called diphtheria, particularly when associated with tonsillar inflammation, painful and swollen lymph nodes and fever.

Leptothrix patches will be found protruding from the crypts or margins of the tonsils, and are very difficult to scrape away, they also resist the action of various caustics to a remarkable degree, and sometimes make repeated scrapings and cauterization necessary.

Squire, J. Edward : Heredity in Phthsis. (*American Journal of the Medical Sciences.* 1897. Vol. cxiv., No. 5.

This paper is based upon a statistical examination of one thousand families, comprising over six thousand, four hundred children. The author combats an idea prevalent in many localities that prophylaxis is useless in case of children in families in which consumption exists; but he believes strongly that the facts regarding heredity in consumption, properly considered and understood, furnish a strong argument in favor of prophylactic measures against tuberculosis. He believes that the influence of heredity in tuberculosis has been overestimated, and that among the general public the nature as well as the extent of this influence is misunderstood. It is clearly the duty of the medical profession to educate the public on matters affecting disease-causation, so that preventive means may be accorded the approving help of the public instead of being met with the obstruction or apathetic indifference with which ignorance receives all prophylactic suggestions and regulations. In tuberculosis especially is it essential that attempts at prophylaxis should be seconded by the public. Without such co-operation the medical profession can do little or nothing; with the intelligent and willing help of all concerned, tuberculosis may be practically stamped out and consumption become as rare as smallpox is now. One great obstacle to the general acquiescence in measures directed against the spread of tuberculosis is the widespread belief in the hereditary nature of consumption.

The author claims that—as shown by the small difference between the incidence of consumption on the offspring of phthisical and non-phthisical parents, respectively—the direct influence of heredity is comparatively small, and is, at any rate, considerably less than has been generally believed. Once let a parent recognize that it is by infection and not by inheritance that he may be a danger to his children, and it will not be difficult to persuade him to take precautions against spreading the disease. Thus, prophylactic measures will be easily introduced into the household where sanitary inspectors cannot penetrate.

Dessau, S. Henry: Children's Teeth as Indicators of Disturbed Nutrition. (*Dental Cosmos.* 1897. No. 3.)

Next to the lesions of the osseous system, the teeth in their development and subsequent condition present the most noticeable feature of rickets. The temporary teeth are late in development, and the intervals between the appearance of the various groups are longer and more irregular than the normal average. So characteristic is this feature that the author has come to be suspicious of the existence of rickets in any infant who has reached the first year of life without showing a tooth.

The most interesting feature, however, regarding the teeth in rickets is one that concerns the dentist more than the general practitioner of medicine. This is the tendency to early decay of the temporary teeth, and less frequently the permanent teeth. This decay he has often observed occurring in the central incisors even before the eruption of later groups. It was in several instances manifested as a distinct notch in the crown of one or both upper central incisors. In older children many teeth may be frequently found decaying rapidly at one time, as if they had crumbled away. The notched appearance of the upper central incisors occurring in the temporary teeth should not be confused with the same condition occurring in the permanent teeth. It is the latter that is known as the Hutchinson tooth, and is a stigma of inherited syphilis.

We may rightly regard the condition of early decay of the teeth, either temporary or permanent, as one of faulty nutrition, and this should receive the attention of the specialist as well as the general practitioner. To be well informed on this point is to have at hand a remedy, for fortunately the condition of rickets is amenable to correction and cure. The health of the pregnant mother should be kept at the highest point. by careful regard and attention to out-door exercise and the maintenance of all the physiological functions. Added to this, her diet should be of that combination to secure a maximum quality of nutrition. The infant requires fresh, pure air, and plenty of it; no sleeping in closed rooms full of stale, over-heated, and over-scented air. At the same time it should be well protected by proper and sensible dress from cold and dampness. Above all, its food should be what nature has provided for it, with due regard to the mother's condition. But in the unfortunate absence of mother's milk, it should have the best substitute, which is by all odds good cow's milk, properly modified by modern methods to suit its digestion. All patent foods, each advertised as the best, should be severely rejected. They are without doubt a most prolific factor in the causation of rickets and allied complaints. Milk should be the sole article of food until the eruption of the first full group of teeth, whether mother's milk or cow's milk be used, and that exclusively; unless proper judgment is shown as to the quantity given and time allowed for the stomach to become emptied before given again, trouble in the form of digestive disturbances is sooner or later sure to follow. It is of the highest importance that the infant should not be over-fed. This is a most pernicious practice and the one most difficult to combat in the nursery.

Maas: Tuberculosis of the Genital Organs in Female Children. (*Jahrbuch für Kinderheilkunde.* B. xlv., H. ii., iii.)

The patient, a girl of five years, died with meningitis and general tuberculosis. At the autopsy both the uterus and tube were found to be tubercular. A search through the literature showed that seven similar cases in which the tubercular process involved the genitals had been reported.

A secondary infection of the genitals may recur directly by means of the circulation or by means of the peritoneum. Demma reported two cases of primary tuberculosis of the genitals in female children. In these two cases there was a fairly good history of direct infection from the hands of the attendants.

Van Wely: Appendicitis in Children. (*Jahrbuch für Kinderheilkunde.* B. xliv., H. iii., iv.)

The author makes the following divisions:

1. Appendicitis catarrhal, acute and chronic.
2. Appendicitis ulcerosa perforativa.
3. Appendicitis infectiosa.

The first form occurs most frequently in children, and is characterized by a painful area above Poupart's ligament. In this location there will usually be found the exudation upon percussion and palpation. Upon rest in bed the exudation usually disappears rapidly. The prognosis is usually good, although relapses in the chronic form are common. The author does not find McBurney's point the most tender portion of the abdomen in the majority of cases.

The ulcerative form is rare in childhood.

Two cases of fatal infectious appendicitis are described. In one a small quantity of pus was found in the appendix, and multiple abscesses in the liver.

In the second case, a general purulent peritonitis was present. In both cases the appendix was thickened, but not ulcerated.

Durante: Habitual Constipation in Infants. (*Jahrbuch für Kinderheilkunde.* B. xliv., H. iii., iv.)

The tendency to constipation has been attributed by some writers to the well known anatomical peculiarities of the intestinal tract in infants.

Other observers maintain that the tendency depends upon the lack of cerebral development. The centers controlling the act of defecation fail in performing their functions. The habitual recumbent position of the very young is supposed by many to predispose to constipation.

The author is of the opinion that the chief cause of the trouble rests with the diet. The infant stool is composed largely of casein and fat, from twenty to forty per cent. of the latter. The fat renders the stool soft and pultaceous, thereby facilitating its passage. When the milk is thinned by the addition with water as is customary, the child receives much less fat than is contained in average mother's milk. As a result of this deficiency, the stool is composed largely of casein which forms into large, hard masses, and blocks up the canal.

The management in a great majority of the cases of constipation in infants resolves itself into supplying the requisite amount of fat to the food.

Groenbeck: The Connection Between Adenoid Vegetation and Enuresis. (*Jahrbuch für Kinderheilkunde.* B. xlv., H. ii., iii.)

One hundred and ninty-two cases of adenoid vegetation came under the author's observation. Thirty suffered from enuresis. A removal of the adenoids in twelve of these cases was followed by a cessation of the incontinence. In two of these the adenoids reappeared, followed by a return of the incontinence. Fifteen were considerably improved. Two slightly improved. In three the operation was without any appreciable effect. One case was lost sight of, and seven refused operation.

Smuck, James Wallace; Melæna Neonatorum. (*Canadian Practitioner.* 1897. Vol. xxii., No. 3.)

The author reports two cases of this condition and gives a résumé of its etiology and relative frequency as found in literature. He found that Lewis gives a résumé of his study of the literature contained in the library of the Surgeon-General's office in Washington. He states that only one hundred and eighty-three cases of melæna vera neonatorum were there reported. About as many different opinions as to the cause appear to exist as there have been observers. Some, such as Billard, Landau, and others, hold that ulcers in the stomach and duodenum are the cause. No doubt these are causes of hæmatemesis in the adult. Again, hæmophilia, hereditary or acquired, premature delivery, etc., were given as causes. In two or three instances the cord was wound around the neck at birth. Syphilis does not seem to be a potent factor. Neumann thinks that the hæmorrhagic diathesis is due to sepsis and not to syphilis.

Ritter has given a résumé of one hundred and ninety cases of hemorrhage from the newborn, and in these thirty-four per cent. had melæna. In all, forty-five autopsies were made, in twenty-three of which the brain lesions were noted; such as meningeal congestion, inflammation, purulent and simple, œdema, extravasatious of blood into meninges and brain substance, softening of the pons and medulla, and effusion into the ventricles of bloody serum. In only two cases where the brain was noted was there found no gross lesion.

Of the one hundred and eighty-eight cases collected, the result was noted in one hundred and forty-six. Of these ninety-nine terminated fatally, being not quite sixty-eight per cent. The character of the labor was normal in forty cases, abnormal in twelve, and not noted in one hundred and thirty-three.

The condition at birth was noted thirty-six times, and twenty-nine are given as healthy. In thirty-two cases it was the first child, in eighteen cases it was the second; in nine cases it was the third; in five cases it was the fourth; in three cases it was the fifth; in three cases it was the sixth; and in one case each it was the seventh, eighth, twelfth, and thirteenth. In three cases the mother is given as a multipara. In sexes the children were sixty-seven males and sixty-nine females. In seventeen cases the mother's health is given as good, and in fifteen as poor. The father's health is given as good in seventeen cases and poor in nine. The age at which melæna occurred was noted in seventy-nine cases; of these thirty-one were one day or less; thirty-four were between one and three days, and fourteen over three days. The shortest time after birth at which melæna occurred was two hours, and the longest was four and one-half months.

As regards treatment, some recommend bismuth subnitate and other drugs, but the author doubts whether much can be done where the infant is very young, and believe quietness and warmth to be essential. Some have recommended ice externally, but it would seem more rational to give it internally. He thinks that feeding from the spoon is better than nursing, as nursing seems to increase the tendency to hemorrhage.

Sinkler, Whorton: Habit-Chorea. (*American Journal of the Medical Sciences.* 1897. Vol. cxiii., No. 5.)

The paper is based upon cases seen in the Philadelphia Dispensary for Nervous Diseases during the past ten years. During this period 1059 cases of chorea were treated, of which 143 were recorded as habit-chorea; of these twenty-two cases occurred during the first hemi-decade, sixty-one during the second, and forty-eight during the third; seventy-four were males and sixty-nine females. In thirty-two cases cardiac murmurs were noted. In most cases voluntary effort controlled the movements temporarily, and the patients usually showed less movement during the attention required of them while the recording of their histories than did cases of chorea minor. In nine cases attacks of chorea minor had preceded the habit-chorea, and two cases of habit-chorea coexisted with an attack of Sydenham's chorea.

Gowers considers the term "habit-chorea" a misnomer, and regards the affection as a form of spasm or tic, rather than a variety of chorea. The same view is taken by several other writers.

The movements in both forms are much alike in character and extent. In both the irregular movements and spasmodic twitchings are like those of chorea minor, but are confined to a limited region of the body. They cease during sleep, are increased by excitement, and may or may not be controlled by an effort of the will. The movements in habit-chorea are unlike the spasmodic twitchings which occur in the different varieties of tic, and this difference may be notably seen by comparing a case of facial tic (tic convulsif) with a case of habit-chorea which affects the upper facial muscles. In habit-chorea the onset may be abrupt or gradual, and the irregular movements are confined to one portion of the body. In the majority of cases the region selected is the face. The spasmodic twitchings occur at intervals sometimes of a few minutes, or the intervals may be so short that the movements are almost incessant. A common symptom is contraction of the zygomatic muscles, moving the angles of the mouth first to one side and then to the other. Movements of the head often occur, such as rotation and nodding or jerking.

Often habit-chorea arises from nasal disease, which gives rise to sniffling or distortion of the facial muscles. In the greatest number of cases, however, some occular defect, either as a refraction-error or disease of the lids, is responsible for unnatural blinking, orbicularis contractions, or movements of the upper facial muscles.

The prognosis in this affection depends largely upon the length of time it has lasted before the patient is seen. In a great proportion of cases, if seen early enough, the disease may be completely and permanently cured. In adults in whom the disorder has lasted for some time it is difficult, if not impossible, to arrest the movements. Habit-chorea has a tendancy not only to become uncontrollable the longer it lasts, but also to increase its range and involve other groups of muscles.

There is no proof that any lesion exists in the brain or spinal cord in these cases. It is probable that the groups of nerve-cells which supply the affected muscles acquire a habit of discharging at irregular intervals independently of any control of the will.

The majority of cases depend upon some distinct and positive cause, which careful investigation will usually discover. It is essential, therefore, in every case to determine the existence of a cause, and to take measures for its removal. In cases of long standing, however, it is not sufficient merely to get rid of the cause, for the nerve-centers having acquired a vicious habit do not recover their normal condition until systematic treatment has been pursued. This is especially observable in those cases in which habit-chorea has resulted from an error of refraction. It has been found that medicinal treatment alone seldom arrests the choreic movements. On the other hand, mere correction of the refraction does not cure them. It is necessary, therefore, first to correct the occular defect, either by glasses or tenotomy, and then to pursue a course of medicinal treatment. The same statement applies to those cases in which nasal or throat disease has been the cause of affection.

In nearly all cases the general health is at fault. The patient is anæmic, or he is run down from overstudy, improper food, or some attack of illness. The point of first importance, then, is to look carefully after the general health. Tonics, more especially chalybeates, should be administered, and, if possible, change of air is to be obtained. In school children it is usually necessary to stop study for a time.

The one drug which seems to exert a special influence upon the disease is arsenic, and it should be administered in the same manner as in the treatment of chorea minor. It is seldom of value when given in small doses, but it should be administered in gradually ascending doses until some toxic influence is observed.

Many years ago Weir Mitchell called attention to the fact that some cases of habit-chorea which were not relieved by the internal administration of arsenic were cured by its exhibition hypodermatically, and this method of treatment continues to be successfully used at the Philadelphia Infirmary for Nervous Diseases.

The question as to whether the patient should be urged to control the movements by an effort of the will, and also as to whether in the case of children any form of punishment should be used, are mooted points. The author's belief is that in all cases the patient should be induced to bear continually in mind the occurrence of the irregular movements, and to make every effort to check and control them. Any form of punishment for the movements in children is to be deprecated, but in every case much can be done by the promise of reward. In almost every child who is suffering from habit-chorea much benefit will be derived from offering a premium wherever the movements are controlled for a certain length of time.

In all cases it is important to secure as quiet and uneventful a life as possible, and removing the patient from work or exciting sports is necessary in many cases. The most speedily beneficial results are obtained by a modified course of rest-treatment. The author has frequently seen cases which resisted the ordinary course of medicinal treatment at the clinics make rapid improvement when admitted to the hospital and placed in bed.

Etiology of Chorea.—Legay has published (*Thèse de Paris* 1897) some interesting statistics relative to the origin of chorea, from which it appears that the disease is found in those who have a neurotic heredity with almost always a recent infection. This infection in the majority of cases is rheumatism, but there are many instances of chorea arising from other conditions, more particularly various specific diseases, such as measles, with or without broncho-pneumonia, scarlet fever, typhoid, influenzic bronchitis, tuberculosis, and varicella, even boils with marked glandular enlargement, impetiginous eruptions on the head, and suppurative otitis. All these seem capable of producing chorea. —*British Medical Journal.*

American Pediatric Society.

TENTH ANNUAL MEETING.

Cincinnati, June 1, 2, and 3.

OFFICERS.

President,	L. Emmett Holt, M.D.
First Vice-President,	Henry Koplik, M.D.
Second Vice-President,	Charles G. Jennings, M.D.
Secretary,	Samuel S. Adams, M.D.
Treasurer,	Frederick A. Packard, M.D.
Recorder and Editor,	Floyd M. Crandall, M.D.

COUNCIL.

Wm. D. Booker, *Chairman.*

T. M. Rotch,
J. P. Crozer Griffith,
B. K. Rachford,
A. D. Blackader,
Wm. Osler,
C. P. Putnam.

COMMITTEE

ON THE COLLECTIVE INVESTIGATION OF INFANTILE SCURVY.

J. P. Crozer Griffith, M.D., *Chairman,* 123 S. 18th St., Phila.
William D. Booker, M.D., 853 Park Ave., Baltimore.
Charles G. Jennings, M.D., 457 Jefferson Ave., Detroit.
Augustus Caillé, 753 Madison Ave., New York City.
John Lovett Morse, M.D., 317 Marlborough St., Boston.

PRELIMINARY PROGRAMME.

1 Address of the President, - L. EMMETT HOLT, New York

2 The Urine of Healthy Infants and Children,
FRANK S. CHURCHILL, Chicago

3 A Report of a Serious Case of Anæmia in an Infant, with Remarks on the Classification of the Anæmias of Infancy, - J. L. MORSE, Boston

4 Short Reports on Some Unusual Cases,
T. M. ROTCH, Boston

5 The Significance of Fever After Operation for Pyothorax, - - - A. CAILLÉ, New York

6 Peculiar Types of Broncho-Pneumonia,
F. M. CRANDALL, New York

7 A Study of an Epidemic, - W. L. CARR, New York

8 Enanthem of German Measles, L. FORCHHEIMER, Cincinnati

9 Congenital Sacro-Coccygeal Tumor in an Infant 34 days old. Operation. Recovery.
F. HUBER, New York

10 A Report of Six Cases of Laryngeal Diphtheria Treated with Antitoxin. One Death. - - - - C. G. KERLEY, New York

11 The Report of the Collective Investigation on Infantile Scurvy in America.

12 Shall all Milk used for Infant Feeding be Heated for the Purpose of Killing Germs? If so, at what temperature, and how long shall this temperature be continued. For Discussion.

ARCHIVES OF PEDIATRICS.

VOL. XV.] JUNE, 1898. [No. 6.

Original Communications.

APPENDICITIS IN CHILDREN—A CLINICAL PAPER.*

BY IRVING S. HAYNES, PH.B., M.D.,
Professor of Practical Anatomy in the Cornell University Medical
College; Visiting Surgeon to the Harlem Hospital; Member
of the New York Academy of Medicine; of the
Society of Alumni of Bellevue Hospital;
of the Harlem Medical Association, New York.

My intention has been to make this paper more of a clinical than a theoretical one. Restricting myself, therefore, to the types of cases that have come under my own observation for operation, other types which would be necessary to make the paper logically complete will be omitted, but I hope that the gentlemen who shall take part in the discussion of the subject will supply the omissions. The histories of the cases will be given first, and the conclusions follow:

CASE I.—Frank D., ten years of age.

HISTORY.—January 5th, 1894. Boy ate a large quantity of raisins, nuts and such stuff. He was taken a short time afterwards with severe pain in the right side of the abdomen. His mother applied a belladonna plaster.

January 6th. Child about the same, pain severe, constipation present. On the evening of the 7th, Dr. S. J. O'Neil was sent for. He found a temperature of 103°, rapid pulse, and pain on pressure in the right iliac fossa. Bowels had not operated. The doctor gave morphia sulphate and applied an ice bag to the seat of the pain.

January 8th. The morning temperature was 99°; the evening, 101°. The ice bag was continued.

January 9th. The morning temperature was 99°; in the evening it had raised to 101.2° with a pulse of 110. At this time Dr. O'Neil asked me to see the case with him.

EXAMINATION.—Child slight for his age, rather anæmic; face shrunken and anxious; abdomen slightly and evenly distended; some tenderness over the entire abdomen, but most marked at

---

* Read before the Harlem Medical Association, May 9, 1898.

McBurney's point, gradually diminishing as you pass away from this point. Bowels had not operated.

DIAGNOSIS.—To the doctor I said: "There is no doubt about the case being one of appendicitis. Judging from the temperature, there is suppuration taking place, and in my opinion, the appendix is full of pus. I should judge from the temperature, pulse and abdominal tenderness that perforation was about to take place. I advise operation, and that as soon as possible."

This advice was accepted, and the case was prepared for operation, which was begun at 11 P.M. Dr. Pulley administered the ether, and Dr. O'Neil assisted with the active work.

OPERATION.—The abdomen was opened by an incision 3½ inches long, parallel with the fibres of the external oblique, with its center over the point of greatest pain, and about one inch from the anterior superior iliac spine. The muscles were divided, the hemorrhage arrested and the peritoneum opened. The bowels at once protruded. Gauze pads were used to hold them back and to carefully work down to the appendix, which was found at the right of the cæcum covered with a layer of plastic exudation, excepting about half of an inch of its distal extremity, which projected directly forward. The appendix was distended with fluid so that it was nearly as large as my index finger. It was carefully liberated from its bed, ligated at its base and removed. During the manipulations to free the appendix and raise it up for ligation, its contents were squeezed into the cæcum, excepting a few drops which escaped through a minute perforation already present near the end of the organ, and which had been covered by the exudation.

The stump of the appendix was thoroughly cauterized with pure carbolic acid. The iliac fossa sponged out with carbolized solution. Considerable peritoneal fluid came into the field of operation, and had to be frequently removed.

The peritoneum was sutured with catgut. The transversalis and internal oblique were sutured as one layer, and the external oblique as another, with continuous sutures of catgut. The skin was stitched with interrupted sutures of silk. No drainage was used. Usual external dressings. Operation well borne. The appendix was opened and found to contain a few drops of very foul-smelling pus, the mucous membrane was necrotic for its entire area, and a point of perforation covered by plastic lymph where there would have been escape of the contents of the appendix in a few hours at longest.

January 10th. Morning temperature, 101.4°; pulse, 120; evening temperature, 102.1°; pulse, 130. Considerable pain over abdomen; bowels had not operated; enema of magnesium sulphate, followed by a wine glassful of magnesium citrate every two hours until free catharsis.

January 11th. Several movements from the bowels; abdominal tenderness diminished; everything favorable.

January 13th, 7 P.M. I saw patient with Dr. O'Neil, temperature, 103.1°; pulse, 130. Tongue dry and cracked. Wound dressed. Serum was escaping from the lower angle, parts were red and swollen. Three sutures were removed, and about a teacupful of foul pus escaped. Several sutures also removed from the upper part of the incision, and considerable pus evacuated. The abscess did not lead to deeper parts, it was only subcutaneous. The abscess cavities were washed out and drained with rubber tubing. The case responded immediately and recovery was rapid. By the 21st of January the child was out of bed.

SUMMARY.—Cause, overindulgence in indigestible substances.

Pain, severe from the beginning, and localized at McBurney's point.

Temperature, highest 103°, on evening of second day of the attack.

Duration of attack before operation, four days.

In bed twelve days. Entire sickness covered sixteen days.

The appendix showed suppurative appendicitis, gangrene of mucous membrane, perforation nearly completed and only arrested by a thin covering of plastic exudation. No attempt on Nature's part to limit the spread of the infection by walling off the inflamed area with matted intestines.

PRESENT STATE, May, 1898.—I have not seen the patient, but Dr. O'Neil says the boy is in perfect health, and that the abdominal wound has remained solid.

CASE II.—Stella M., eleven years of age.

HISTORY.—July 19, 1896. Taken sick with pain and tenderness in the right lower abdominal region.

July 22d. I saw the case with the family physician, Dr. A. J. Kuehn.

EXAMINATION.—The abdomen was slightly distended, and an ill-defined mass in the right iliac fossa. The right rectus and abdominal muscles were rigid. The entire abdomen was tender, but more marked in the region of the appendix. The temperature was 102°, pulse 160. Child's face had an anxious look.

DIAGNOSIS.—Suppurative peritonitis due to perforation of a diseased appendix. Immediate operation proposed.

TREATMENT.—Child taken to the Harlem Hospital and operated upon as soon as the necessary preparations could be made. The usual incision was made. As soon as the peritoneal cavity was opened, thin yellowish fluid with whitish flakes escaped with a rush. All parts of the abdominal cavity were thoroughly irrigated with hot saline solution by means of a large-sized intrauterine, glass douche tube.

The appendix was freed from adhesions and brought into the wound. It showed a perforation at its tip, and another one inch from the first. The mesentery was ligated and divided. The base of the appendix was encircled with a silk suture passed well in the coats of the cæcum; the appendix was clamped and divided near the cæcum, and the distal portion removed. The stump was now inverted into the cæcum, and the previously introduced suture tied. This puckered the peritoneum nicely, and closed the orifice of the inverted appendix. A second continuous silk suture was introduced for safety; burying the first. The omentum had attempted to cover over the appendix, but had not succeeded, and a thickened portion adherent to the appendix, about two inches square, was removed.

The abdominal cavity was treated to pure hydrogen peroxide poured directly from the bottle into the wound. This was followed by the saline irrigation. A small iodoform gauze wick was placed about the site of the appendix, and let out of the lower angle of the wound. The peritoneum and muscular layers were separately sutured with fine silk, and the skin with silk-worm gut as far as the drain. The aristo-collodion dressing applied.

On the second day the abdomen was distended, the note over the liver was tympanitic. The gauze wick was removed as it was feared that the drainage was not good, although the temperature was normal. There was no retention of pus. A second small gauze drain was introduced; the remaining part of the wound was neatly closed with a silk-worm gut suture. The distention of the abdomen was caused by gas in the intestines, due to paralysis of their muscular coats from the peritoneal infection. An enema of hot saline solution containing ten grains of quinine given. Result was good; patient passed flatus and fæces and the abdominal distension disappeared. Strychnine had also been given from the very first.

Discharged August 22d, with a small sinus, which closed in a short time.

SUMMARY.—Cause, none assigned.

Pain, severe and in the right iliac fossa.

Temperature on entering hospital, 102°, pulse, 160.

All the signs of general septic peritonitis due to a perforated appendix.

Operation and recovery.

Duration of attack before operation, four days. In the hospital, one month.

PRESENT CONDITION, May 7, 1898.—Child has grown very rapidly. Scar bulges somewhat, but seems generally firm. No point of hernial protrusion.

CASE III.—Julia R., aged three years.

HISTORY.—Father died of phthisis. Mother was also infected and died this year from tubercular laryngitis. Child has been weakly from birth, and subject to constipation. About September 14, 1896, child felt badly. Was temporarily relieved by castor oil. Vomiting, fever, and pain over the abdomen set in. She was examined by Dr. Sharp, the family physician, who pronounced the case one of appendicitis and advised removal to the hospital. The child was admitted to the Harlem Hospital on the afternoon of September 21st. Temperature 102°, pulse 140, respirations 32. Face flushed, tenderness over the entire abdomen, very restless.

TREATMENT.—Enema administered, strychnine hypodermically with whiskey. Operation conducted as previously outlined. Pus escaped as soon as the peritoneum was divided. The pus was not walled in, but was free in the abdominal cavity. It was thoroughly removed by copious irrigation with saline solution; then peroxide of hydrogen, and with saline a second time.

The appendix was gangrenous; had ruptured in several places; was adherent to the intestines and so soft that it had to be removed piecemeal. It offered no substance for application of a ligature, and as the opening into the cæcum seemed to be firmly closed, none was applied. The base of the appendix and the surrounding tissues were thoroughly treated with pure peroxide of hydrogen and the abdominal cavity again flushed with the hot saline solution. Drainage was applied by strips of iodoform gauze placed over the cæcum and left at the lower angle of the wound. The peritoneum, muscles, and skin were closed èn mass with through and through silk-worm gut sutures.

September 22d. Temperature 101°, pulse 120, respirations 30. Beef tea retained. Dressings changed. The gauze drain was removed on the 26th, and a fresh one inserted. Case made a fair convalescence. Discharged October 9th, with wound healed. Ten days later the wound reopened and a slight discharge of pus followed. On the 20th, vomited and was restless. On the 21st, abdomen was tender on the left side. Bowels were freely moved by calomel in divided doses. The sinus was enlarged and a small abscess cavity drained with a rubber tube. This was retained until November. By December the sinus had healed. The scar was a weak one, however, on account of failure of close apposition of the peritoneum and the layers of the abdominal wall, and a hernia as large as a hen's egg had appeared. The child was readmitted to the hospital on January 5th, '97, and an operation performed for ventral hernia, the details of which I do not care to introduce here at this time; suffice to say that she was discharged on January 22nd, with a firm scar which has remained perfect to this date.

SUMMARY.—Cause, none stated; possibly tubercular.

Pain, diffused over the abdomen.

When admitted there was general septic peritonitis. The appendix was gangrenous and had several openings in it.

Recovery with ventral hernia into the scar. Hernia cured by later operation.

Duration of sickness preceding operation, one week. Time in hospital for appendicitis, eighteen days. Treated as out-patient for six weeks before sinus closed.

PRESENT CONDITION.—Child has grown fat and healthy. Abdominal scar firm, not tender. No sign of hernia.

CASE IV.—Agnes B., seven years of age.

HISTORY.—January 12th, 1897. While eating figs patient was seized with pain in the right lower abdominal region. This continued with fever and prostration, the patient steadily growing worse until the 17th, when Dr. Eynon was called. He had the child taken to the Harlem Hospital.

EXAMINATION.—Temperature 102.8°, pulse 118, respirations 26. There was rigidity of the right rectus muscle, and the abdomen was tender to pressure, especially in the region of the appendix, where an ill-defined swelling was found.

OPERATION.—The usual incision three inches long in the right iliac region. Pus flowed as soon as the abdominal cavity was opened, but the abscess cavity was walled off from the general abdominal cavity by adherent coils of intestines. The usual irrigation of saline, peroxide of hydrogen and saline solution. The cavity was sponged dry, the appendix freed and brought into the wound, its mesentery ligated and the appendix removed. An attempt was made to invaginate the stump of the appendix into the cæcum, but the tissues were so much thickened with inflammatory exudate that it was impossible. The stump of the appendix was then ligated and its mucous membrane destroyed with carbolic acid. The abscess cavity was then irrigated for the last time, a strip of iodoform gauze placed about the stump of the appendix and the cæcum and left at the lowest portion of the incision. The peritoneum and muscular tissues were then sutured separately and in accurate apposition as far as the drain. The wound dressed as usual. The appendix showed thickened walls, a perforation on one side, and it contained a fæcal concretion about the size of a pea.

January 18th. At 4 P.M. temperature 105.8°, pulse 128, and respirations 45. Patient was delirious all night, but retained medicines and milk.

January 19th. 7 A.M. temperature 101.4°, pulse 122, respirations 22. Patient passed fairly good night, slept about four hours. Complained of pain in abdomen. Retained all medicines and nourishment. In the afternoon the dressings were changed. Gauze drain loosened up and partially removed. Wound doing nicely. Improvement progressed steadily. Developed a hard cough, treated by the muriate and carbonate of ammonium and Tr. opii camphorata.

Temperature fluctuating between 99° and 100° up to the 21st.

when the gauze was removed. From now on the temperature fell, reaching normal on the afternoon of the sixth day, January 22nd. Light diet begun in addition to milk. Movements several each day. Cough troublesome, temperature rising to 99° for highest, but mostly normal up to the ninth day, January 26th.

Cough better, temperature normal all day, pulse running about 100°. Course now uneventful to complete recovery. Wound healed rapidly with exception of a small sinus. Discharged February 12th, with small sinus; February 19th, sinus healed.

April 5th. Came to office. Small sinus persisting. This remained open until the first week in May, when the end of a silk suture appeared in the wound; this was removed and the sinus closed at once.

SUMMARY.—Cause, assigned to eating figs.

Pain, in usual location. Fever and prostration.

Localized suppurative peritonitis due to ruptured appendix.

Duration of attack preceding operation, one week. In the hospital, twenty-five days. Time until loosening and removal of silk suture and permanent healing of the sinus, about four months.

PRESENT STATE.—Child seen May 6, 1898. In perfect health, has grown rapidly since the operation. The scar is perfectly solid, and no signs of weakness or hernia. Scar and right iliac fossa not sensitive to deep pressure.

CASE V.—Edward R., about fourteen years of age.

HISTORY.—Boy, an inmate of the House of Refuge. Was confined to the bed with abdominal pain, tenderness and fever for several days. The tenderness was not typical in its location, being in or near the median line. The case was in the service of Dr. Van Santvoord, who transferred him to the Harlem Hospital, January 16th, 1897.

EXAMINATION ON ENTRANCE.—Temperature 102.8°, pulse 122, respirations 24. Marked pain all over the entire abdomen, but greatest in the right iliac region. The abdominal muscles were very rigid, especially on the right side. Face, drawn, anxious, and dusky.

OPERATION.—On opening the abdomen by the usual incision pus and fluid at once flowed from the wound. The entire abdominal cavity was filled with a thin yellowish fluid. Saline solution, peroxide, and saline irrigation freely used to remove it. The perforated, gangrenous appendix was removed as quickly as possible by simply ligating it close to the cæcum. The stump was cauterized with pure carbolic acid. Abdominal cavity again irrigated, iodoform gauze drain inserted so as to drain pelvic cavity, and the region about the ascending colon and cæcum. The abdominal wall was closed in separate layers as far as the drain. During the operation whiskey and strychnine were freely given.

After removal to the bed an enema of half a pint of saline solution, with ten minims of Tr. digitalis and two ounces of whiskey was given. In spite of free drainage, and full stimulation the boy died on the 18th.

SUMMARY.—Cause, not stated.

Pain, near the middle line not directed towards the appendix until after it had ruptured. Marked muscular rigidity especially on right side.

Case of general suppurative peritonitis following perforation of an inflamed appendix.

Operation, drainage, death on second day.

CASE VI.—Edith L., aged seven years.

HISTORY.—This is rather indefinite as at the beginning of her sickness she was prescribed for by one physician, and as she temporarily improved, she was under no medical supervision until the day before her entrance to the hospital. As obtained the child did not vomit at the beginning and she was not sick enough to go to bed, but was dressed and up and about, lying down at times on a sofa. She was not well, but complained very little. She was in this condition for about five days, when being taken worse with vomiting and pain on the right side of the abdomen, a second physician was called in, who recognized the nature of the attack and had her removed to the Harlem Hospital.

EXAMINATION ON ENTRANCE.—July 17th, 1897, 9 A.M. Temperature 99.4°, pulse 104, respirations 26. There was a tumor in the right iliac fossa, oblong in shape, about two by three inches, tender to pressure. The general symptoms were so mild that I told the house staff that only for the presence of the tumor I would not operate then. Yet, inasmuch as the tumor was present it was probably formed of matted coils of intestines, and possibly there was a small abscess present, but I expected to find only a catarrhal appendicitis.

OPERATION.—On opening the abdomen by the usual incision, the appendix was found immediately beneath and adherent to the peritoneum and surrounded by agglutinated coils of intestines. The omentum was also present and formed adhesions about the appendix and intestines. There was no pus present, though we were greatly surprised to find the appendix gangrenous throughout its entire extent, and only covered over by a thin layer of plastic exudation. Its walls ruptured in several places when its removal was attempted, but the surrounding parts had been protected by a packing of gauze pads. The base of the appendix and the adjacent wall of the cæcum were much thickened and were very hard and stiff from inflammatory exudation, and it was impossible to invaginate the appendix into the cæcum so the old method of ligating the appendix and cauterizing the stump was performed. The portion of the appendix removed was about three and a half inches in length and from one-fourth to three-eights of an inch in diameter, and showed several perferations.

The wound was irrigated with pure peroxide of hydrogen and all the little pockets were thoroughly separated without rupturing the adhesions, and the peroxide allowed to penetrate to them; then the saline solution was turned in and the parts washed clean. The cæcum at the base of the appendix looked so very bad I feared that the spot would slough out and a fæcal fistula result. With this in view the cæcum was carefully surrounded with iodoform gauze, which was brought out at the lower angle of the wound. The abdominal walls were sutured through and through with silk-worm gut. The course of the case was most satisfactory. The highest temperature was 101° at 4 P.M., on the day of the operation, and the pulse 130. The temperature and pulse reached normal on the third day and remained so thereafter. On the fourth day the gauze drain was removed and two small sized rubber tubes side by side introduced.

The recovery was rapid and the wound healed without a single drawback. She was discharged cured, August 4th. Duration of attack before operation, about one week. Time in the hospital, eighteen days.

SUMMARY.—Onset, without characteristic symptoms, and those present very mild.

Almost normal temperature and pulse even, with the appendix gangrenous for its entire extent.

Absence of pain of any amount until the day before the operation. Localized plastic peritonitis, gangrenous appendicitis, operation, recovery.

PRESENT STATE.—Have not been able to trace the patient. When discharged from the hospital she had a firm scar.

In generalizing I shall confine myself to the cases here reported: as these are all of the severer types our considerations will not be complete in that those milder forms of appendicitis which recover without an operation being really indicated are omitted. Of the cases given, five were females, one a male. The oldest was fourteen, the youngest three years of age.

The shortest duration of sickness preceding the operation was four days, (two cases) the longest seven days (four cases).

The onset of the sickness was marked with localized pain in the right iliac fossa in four cases, sufficient to direct the attention of the parents to this spot. In one case there was more of an uneasiness all over the abdomen, which later become localized in the usual place, and in another case the pain began about the middle line of the abdomen and did not become localized until the appendix was on the point of rupturing or had ruptured.

The temperature and pulse records are not available from the beginning of the attacks, they are therefore given as found a few hours preceding operation.

Classifying the cases according to the conditions found in and about the appendix we find: one case where the appendix was distended to bursting with pus, but rupture had not taken place. Here, the temperature in the morning was 99°, and in the evening a short time before operation 101.2°, with a pulse of 110. A second case showed a gangrenous appendix perforated in several places, but the perforations soldered temporarily with plastic lymph. The temperature was 99.4° and the pulse 104. The third case showed the appendix ruptured with a localized abscess. Here the temperature was 102.8° and the pulse 118.

In the three remaining cases the appendix had ruptured into the peritoneum and a general septic peritonitis was present. One case had a temperature of 102°, and a pulse of 160. Another, a temperature of 102°, and a pulse of 140. The last, a temperature of 102.8°, and a pulse at 122.

Considering the prominent constitutional symptoms of disease, temperature and the pulse, we see that appendicitis is a disease of very low temperature and pulse rate. The temperature and pulse do not reflect the serious nature of the inflammation until perforation of the appendix is imminent or has already taken place. This fact increases the difficulties of diagnosis and may give the physician a feeling of security which may be suddenly disturbed by the perforation of the organ and the lighting up of a general septic peritonitis.

We cannot pin our diagnosis, then, to the pulse and temperature; in fact there are no one or two symptoms which can be decided upon as pathognomatic; we have to consider all the evidences in each case and then perhaps are undecided.

Other constitutional symptoms are the facial appearance of the child; this is especially marked in cases that have developed peritonitis. It is not diagnostic in the mild cases, and at best is only suggestive of a severe or mild sickness, yet the consideration of the facies should not be overlooked.

The local symptoms are by far the most important and are those upon which we must make our diagnosis consulting the state of the temperature and pulse for confirmatory evidences. It is of the greatest importance that the examination of the abdomen should be thorough and productive of results. In examining children gentleness is the first requisite; this is especially true in abdominal affections, therefore be gentle with the child. Uncover the abdomen, look it over, noting the state of fulness; if it is distended in one part alone or generally. Consider the manner of respiration, whether the abdomen rises and falls, showing that the diaphragm is working, or whether the breathing is thoracic alone, indicating that the diaphragm is inhabited by the peritoneal inflammation.

Percussion.—Percuss the left side, gradually working around to the location of the most tender region. The percussion should be light at first, and if no information is obtained, then stronger to locate deeper foci of inflammation. Percussion is chiefly useful in detecting the extent of the gaseous distension and the degree of tenderness of the bowels. As a means for locating an appendicular tumor or abscess, it is of slight usefulness, as there may be a localized abscess giving a tympanitic note, because it is covered by coils of intestines filled with gas. If a tympanitic note is obtained in the region of the usual liver dulness it shows that the intestines are greatly distended with gas or that it has escaped through a perforation into the abdominal cavity, and indicates a most serious condition.

Palpation.—Lay the whole hand gently upon the abdomen on the side away from the painful spot as told by the child. Do not make point pressure with the fingers but carefully depress the abdominal wall with the flat of two or three fingers. In this examination note the ease with which the abdominal wall can be depressed, the degree and area of tenderness, and especially the state of the muscles themselves, whether they are flaccid all the time or contract on deep pressure, or if they contract when making a superficial examination showing increased irritability, or if they are in a state of reflex spasm all the time.

The degree and area of this reflex muscular contraction or spasm is a very valuable indication of the intra-abdominal condition. The more severe the inflammation and the greater its extension from the original focus, the more general and acute the muscular spasm. In most cases you will find a point where the tenderness and pain are greatest; this is usually at the place designated as "McBurney's point," one-third to one-half of the distance from the anterior superior iliac spine toward the umbilicus. The degree of sensitiveness at and about the appendix gives us a clue to the condition of that organ. The more sensitive it is the more acute the inflammation, as a rule. After perforation has taken place the local signs are masked by the general ones immediately lighted up.

In most cases you will not find a well-defined tumor but a state of fulness which is very suggestive, for it means that the intestines are being massed and matted together and their peristaltic movements inhibited by the irritation of the inflamed appendix.

With a well-defined tumor you expect to find a localized abscess or coils of agglutinated intestines surrounding the appendix. With an abscess already formed besides the tumor which it produces, there may be a sense of imperfect fluctuation but unless there is considerable fluid in the abscess, or it be formed close to the surface, or the reflex muscular rigidity of the abdomen be slight, you cannot detect fluctuation. This is a symptom of little value at all events and is not necessary to the diagnosis.

DIAGNOSIS.—The symptoms which are most useful in determining the state of the inflamed appendix, and especially those which point to an early rupture of the tube, are these: there will be abdominal tenderness, usually not extending beyond the median line with its most sensitive area over the appendix; there will be found reflex muscular rigidity of the right abdominal muscles, this reflex contraction becoming more marked as you approach the right iliac region. If you can press the abdominal wall backward sufficiently far you may detect a tender mass, oblong in shape, in the region of the appendix, which is probably that organ. But I would warn you against making such pressure as will hurt and alarm the child, or even in making too much pressure in any case, as from the histories previously given you will see how early perforation takes place, and injudicious and too forcible pressure may rupture an already thinned and distended organ. I do not think it wise, therefore, to try and palpate the appendix in all cases, unless as a preliminary examination just before an operation, but to determine its probable condition by careful palpation of adjacent parts, for they in their tenderness and spasm reflect the degree of inflammation present in the appendix.

In connection with the question of threatened perforation of an appendix giving the symptoms of an acute inflammation the temperature and pulse offer a clue; before perforation the temperature may range from 99° to 101° F., and the pulse from 100 to 110; but as soon as perforation has taken place, although the temperature may only show a rise to 102° or 103°, the pulse jumps up to 140 or 160. So in a case of tender abdomen, rigid right rectus and abdominal muscles, severe pain on pressure over McBurney's point with or without a tumor, with a temperature not far from 100°, but with a pulse relatively constant to it at about 110, although it may be full and bounding, you may be sure that rupture has not yet taken place but is very near at hand, and an early operation is demanded.

If rupture has taken place into the peritoneal cavity the changes in abdominal symptoms are more in degree than in kind; the tenderness increases and spreads all over the abdomen, though it is greatest over the region of the appendix; the entire abdomen is hard from the contraction of the muscles, though the spasm is still more marked to the right of the median line; a tympanitic note may be obtained in place of the normal liver dulness, the respiration is thoracic, the temperature at first shows very little disturbance, being between 102° and 103°; the pulse, however, has changed markedly and will be running at the rate of 140 to 160; it is thin, hard and wiry; in fact, the pulse usually described as that of peritonitis.

The appearance of the patient with general septic peritonitis is characteristic; there is a striking shrinkage in the face; it is drawn and anxious, in fact, the so-called Hippocratic visage.

Cases which begin very mildly may present the most serious conditions on the operating table, as did Case VI. This child laid about the house for a week before developing alarming symptoms. Case V. also, who was sick with indefinite abdominal symptoms for several days, and then in a few hours presented the evidences of septic peritoneal infection. You must be on your guard, therefore, for these so-called mild and indefinite cases may very unexpectedly become the most dangerous.

The case that died was in extremis when placed on the operating table and the operation was undertaken to save life, as death was sure without it. Some surgeons advise to let such cases alone, saying that they will die anyway and to use the knife only discredits the operation. But I do not think we can afford to become the judges in such cases and sentence the patient to a certain fatal termination, especially for the reason assigned. Our judgment may prove true in the great majority of cases, still we have the satisfaction of knowing that we have done our utmost, and in those few cases which live we have the greater satisfaction of knowing that we have been instrumental in saving life. Therefore give the desperate cases a chance to fight for their lives, even at the risk of increasing our death rate. It may help you to my way of thinking to know that in seven cases of severe general septic peritonitis following perforation of the appendix occurring in children and adults upon whom I have operated, four patients recovered and three died. Of the other cases, nine in number, all recovered.

REGARDING THE OPERATION ITSELF.—If time permits, the patient is to be carefully prepared by securing an operation of the bowels, scrubbing the abdomen and the use of an anticeptic dressing, with the careful administration of stimulants, such as whiskey, strychnine and digitalis, if necessary. The details of preparation for the operator, assistants and patient just before the operation are too well known to need repetition here. I would say this, that after the preparations are all made only decinormal salt solution is used for irrigating the parts.

The incision by preference is made in a line parallel with the fibres of the external oblique, about one inch from the anterior superior iliac spine with its center over McBurney's point. The length of the incision is of little moment. It is better to make the incision long enough at the beginning than to lacerate the soft parts by forcible retraction, or to have to enlarge the original incision during the operation. From two to three inches is enough, according to the size of the child. In cases of mild catarrhal appendicitis the very small incision may be sufficient, but I hold that to attempt to disengage and remove a swollen appendix through a small incision is poor surgery, because of the danger of rupturing this organ by the manipulation necessary for such procedure.

In children it is better to divide the transversalis and internal oblique in line with the external oblique, because the interval between the anterior superior iliac spine and the linea semilunaris is not great enough for the performance of the operation advised by McBurney in adults, of separating the muscles in the direction of their fibres. Make clean cuts through these muscles for the entire extent of the skin incision.

Reaching the peritoneum, pick it up between thumb forceps and divide it, keeping in mind that often the intestines are tightly adherent to it. Having entered the abdominal cavity you proceed according to the case. If a simple case without adhesions, bring up the appendix, ligate its mesentery, place a continuous sature in the cæcum about its base, clamp the appendix and divide it a fourth of an inch from the cæcum; while the appendix is being divided, have the purse-string suture tightened, sponge off the end of the stump of the appendix with pure carbolic acid, invert it into the cæcum, tie the encircling suture, then insert a continuous suture at a little distance from the first, so as to cover it in.

Suture the peritoneum with fine chrome catgut, the transversalis and internal oblique, as one muscle, with a little heavier strand, and the external oblique with a similar one. In handling the external oblique be careful not to strip it from the deeper parts, as by so doing you tear off its blood supply and favor necrosis of the fascia. Suture the skin with plain sterilized catgut. Seal with aristo-collodion. The case will not need attention for two weeks. If the appendix is found buried amid coils of intestines, these must be carefully separated, remembering that at the center of such a mass you may find a pus-pocket, hence the necessity of first carefully walling off the general abdominal cavity with gauze pads, each one of which has a tape sewed to it and a clamp fastened to the tape.

If the appendix is found still whole remove it as just indicated. If the cæcum and stump of the appendix are so thickened by the inflammatory exudate as to render the inversion impossible, one plan is to do the old operation of ligating the appendix and cauterizing the stump with pure carbolic acid; the newer and better way, but which I have not tried yet, is to cut off the appendix level with the cæcum and close the hole with two rows of continuous Lambert sutures.

Of course, in the last case you run the risk of having the contents of the bowel escape, but by compressing the cæcum before the division and keeping the part tightly grasped by the assistant, this risk is diminished. If the appendix has ruptured and a localized abscess formed, remove the appendix, or as much of it as possible, dealing with it according to the preceding plans. In your anxiety to be thorough do not tear up the protecting adhesions, unless absolutely necessary to complete the operation. As soon as such an abscess cavity is opened, wash it out with saline solution, then with pure peroxide of hydrogen, followed by more saline, then dissect out and remove the appendix.

Such a case as this should be drained, and the best drain is gauze, plain or iodoformized, around which has been wrapped thin rubber tissue. This is the cigarette-rubber-gauze drain of Morris.

If you find that the appendix has ruptured and discharged its contents into the peritoneal cavity, it is necessary to flush it out, and nothing is any better than a glass intrauterine tube with a diameter of half an inch. Pass this tube up to the spleen, to the liver, into the left iliac fossa, into the pelvic cavity, and use quarts of hot sterilized salt solution, wash until the fluid returns perfectly clear, then turn in pure hydrogen peroxide and remove this with a second saline irrigation. Sponge out the excess of fluid, place your gauze dam and deal with the appendix. Drain such a case. If in doubt, drain, if not needed it can be removed in twenty-four hours and no harm result. If needed, but not used, you will lose the patient, as a rule.

In closing the abdominal walls around a drain you follow the same steps as given in the first case, closing the layers separately as far as the drain, and protecting the sutured portion of the incision with the aristo-collodion dressing.

In case the patient is in extremis and haste must be made, do not bother with refinements. Cut quickly into the abdominal cavity, flush it out, ligate and cut off the appendix, turn in the peroxide of hydrogen, and irrigate again. Insert the drain, placing the gauze about the stump of the appendix. Close the abdominal wound with silk-worm sutures through everything. If the patient lives and a hernia results, you can repair the abdominal wall at some future time. Life is at stake, and death will win unless you can defeat him by fast work and removal of the infection.

1125 Madison Avenue.

The Modern Aspect of Indicanuria.—Dr. Charles E. Simon (in the *American Journal of the Medical Sciences*) summarizes his results as follows:

1. The gastric juice possesses antiseptic and germicidal properties.
2. These properties are referable to the presence of free hydrochloric acid.
3. A subnormal amount of free hydrochloric acid will call forth an increased degree of intestinal putrefaction.
4. The conjugate sulphates form an index of the degree of intestinal putrefaction.
5. The increased intestinal putrefaction in cases of subacidity and anacidity of the gastric juice is largely referable to an increased formation of indol.
6. The elimination of indican in the urine may be regarded as an index of the amount of free hydrochloric acid present.
7. A normal acidity of the gastric juice is never associated with increased indicanuria.
8. Cases of ulcer of the stomach apparently form an exception to this rule, an increased indicanuria being usually associated with hyperchlorhydria.
9. In other cases of hyperchlorhydria a subnormal or normal amount of indican is eliminated.
10. Simple constipation is rarely accompanied by an increased elimination of indican.
11. Diarrhœa referable to a catarrhal condition of the colon, often following a previously existing coprostasis, as well as diseases of the colon in general, is not associated with an increased indicanuria.
12. In the differential diagnosis between ileus and coprostasis, a small amount of indican excludes the former condition.
13. In cases of an achlorhydria with much lactic acid, the indican is not necessarily increased.
14. No indican, or but little indican, with delayed Günzburg potassium iodide reaction, indicates the absence of free hydrochloric acid, with much lactic acid.

THE CAUSES AND TREATMENT OF HABITUAL CONSTIPATION IN INFANCY.*

BY THOMAS S. SOUTHWORTH, M.D.,
Attending Physician, Nursery and Child's and Randall's Island Hospitals;
Physician to Dispensary of Babies' Hospital; Lecturer on
Pediatrics, New York Polyclinic.

Both coincident with and dependent upon our broadening knowledge of the cardinal principles of successful infant-feeding, the constipation of infancy has assumed a new phase in the eyes of the profession. From being regarded almost as a disease *per se,* amenable only to drugs, it has come to be looked upon merely as a symptom of various functional disturbances of the organism, whose treatment may necessitate slight or more extended modification of the dietetic and hygienic management of the child.

Leaving out of consideration here all forms of acute constipation, and also those of obstipation, which arise from direct mechanical obstruction to the passage of the fecal contents through the bowel, conditions which, while dismissed from present consideration, should always be borne in mind and properly excluded in our diagnosis, we come directly to those causal factors which produce an habitual disturbance of the functional balance in the intestinal tract and result in an imperfect delayed or partial evacuation of the contents.

The final extrusion of the waste products of digestive metabolism bears a somewhat undignified resemblance to the act of parturition, in so far, at least, that it might with some similitude be compared to it and treated of under the familiar headings of the Passage, the Powers and the Passenger. In fact, we have to deal with the conformation of the intestinal tube, its neuro-muscular, secretory and absorptive powers, and the nature of its contents.

Much has been written from a theoretical standpoint concerning the influence of the peculiar conformation of the intestines in infancy, the proportionate lengths of the various artificially named anatomical divisions, their curves and angles; but plausible as these theories may at first seem, they are not borne out by my own observations in the autopsy room. My investigations of the size and position of the sigmoid flexure, together with its contents, lead me to believe that the importance of this factor in infantile constipation has been over-estimated. It is rather to the deficient muscular power of the intestinal coats, to sluggish peristalsis, to disturbed secretory conditions, and to the altered consistency of the fecal masses, that we must turn for an explanation of the difficulty. To these must be added the absence of voluntary effort, so important in the adult, but lacking in the infant until developed by proper training. But it is not within the scope of this paper to discuss theoretical considerations, except from the standpoint of the measures devised for their relief.

---

*Read before the Section on Pediatrics, New York Academy of Medicine, May 12, 1898.

Practical daily experience in dispensary and private practice has taught me that constipation in most fairly nourished infants falls under one of a limited number of heads, and yields readily to measures which are largely dietetic, provided one is willing to study the individual case and examine the stools. In entering upon the treatment of such a case, the size and number of the stools must be carefully considered, but it is of the highest practical importance that the fecal masses themselves should be inspected and dissolved or broken up by the physician, and in some cases, if practicable, subjected to chemical analysis, before we can be in a position to enter upon a line of intelligent medication.

For purposes of inspection, I insist that the mother shall produce the napkins at each visit. Unfortunately, it is at present a difficult and expensive matter to secure reliable analyses of the stools, but better and cheaper facilities for such examinations are among the refinements of modern analytical medicine which we may confidently look for in the near future. We need, first of all, more extensive analyses of the normal healthy stools at different periods of infancy, and in a large enough number of cases to establish the normal and its variations within the limits of health.

The constipation of nursing infants is often a more difficult problem to deal with than that in those who are artificially fed, because we cannot so directly control or change the quantity and quality of the food. However, the work of Rotch, Holt and the Adriance brothers, has shown us that we can materially modify the milk of the nursing mother as regards its quantity and its percentages of fat and proteids. In such instances, accurately obtained data at the outset will greatly simplify the problem. Some idea of the quantity of milk in the breast may be obtained by the use of the breast pump or by expression at the hour of nursing, but this is unreliable, and accurate information as to the total secretion can be more readily and satisfactorily obtained by comparing weighings of the child made before and after nursing on several occasions. To this should be added a chemical analysis of the breast milk, but if this is not obtainable, an approximate estimate of the quality and proportionate composition of the milk can be arrived at by the use of the specific gravity lactometer and graduated cream gauge, or some form of centrifuge. The percentage of the fat and the total quantity of the milk are the factors into which we need especially to inquire with regard to the treatment of constipation, for the sugar and the salts are not easily influenced, and too high proteids, it would appear, probably produce colic and loose movements rather than the contrary. A low proteid, however, may be of importance in that it lowers the total solids of the milk, as well as influencing muscular development.

The quantity of the mammary secretion may be increased by adding to the dietary of the mother more fluid food, cow's milk, cocoa, and thin gruels, especially that made from well-cooked corn-meal flour. The addition to the mother's meals of more eggs, meat and broths, or the giving of one of the reliable extracts of malt, are the most efficient means of increasing the secretion of fat.

Regurgitation of small quantities of milk, or vomiting after nursing, may serve to warn us that we have pushed the fat percentage of the milk beyond the digestive power of the infant.

With a failing supply of milk and low total solids, so common in the latter half of lactation, attention to the diet of the mother, and the administration of tonics, especially iron, with or without strychnine and arsenic, if there be anaemia, will often tend to re-establish the secretion.

If the constipation be coincident with a stationary weight supplementary feedings are indicated, unless the mammary glands respond quickly to the measures just indicated, and with their adoption the constipation quickly disappears. Here the clue is obtained by the observation of the stools, which are small or made up of small, firm scybala, which, when broken open, contain no curds, and appear to be fully digested. The complemertal information furnished by the regular weekly use of the scales suggests the remedy.

However, the constipated child may show a fair gain in weight, but this is attained despite a small secretion of milk in the breasts, because of the very complete absorption of the elements of the milk leaving too scanty a residue. It is in instances of this kind that good results follow the administration of cream, one or two drachms just before each nursing. This is also a valuable procedure in other cases where the bulk of the stools is larger, but their substance is dry and hard.

Constipation in the nursing mother has often been given as the cause of a like difficulty in the child. It is, however, difficult to trace the connection, unless it be due to deficient secretion alike of the mammary and intestinal glands. Regulation of the mother's bowels should, however, be undertaken, and in some cases assists in remedying the constipation of the infant, whether by its effect on the maternal health, the stimulation of secretion, or the excretion of the laxative principles in the milk.

In piloting the frail bark of infancy through the dangerous passages of artificial feeding, the parent or the physician is confronted on the one hand by the Scylla of diarrhœa, and on the other by the Charybdis of constipation. Fortunately for us, however, the channel is broader and safer on the side of constipation, and wrecks are less frequent along its shores.

Success in infant feeding depends upon a proper adaptation of the elements of the food to the digestive powers and requirements of the child. This resolves itself largely in young children into the choice of suitable percentages of the fat, sugar and proteid in the modification of cow's milk. The commonest errors in diet leading to constipation are the giving of insufficient fat, or insufficient proteid, or of excessive proteid. This insufficiency or excess of proteid may, it should be remembered, depend solely upon an excessive or insufficient dilution with water. Thus we find that the child is receiving a food containing:

(*a*) Proper proportions of total solids, but given in insufficient quantity.

(*b*) Excessive or improper proportions of total solids in too concentrated a form.

(*c*) Proper amount of total solids in too concentrated a form.

(*d*) Insufficient amount of total solids, excessively diluted.

Many children who thrive to all appearances upon commercial condensed milk are constipated despite the supposed laxative properties of cane sugar (of which it contains 40 per cent. of the total solids), because, as it is usually diluted, the fat and proteids are very low and the unabsorbed residue very small. The sugar, moreover, is absorbed and goes to form fat, while the deficiency in proteids results in a poor development of the muscles of the abdominal wall, and the intestinal coats, as well as those situated elsewhere in the body. In the homes of these children the castor oil bottle is usually found not far from the condensed milk can. To increase the amount of condensed milk is to increase proportionately the amount of cane sugar, and this is not always advisable beyond a certain point. The alternative, then, is change the food or to add fat gradually in the form of fresh cream, a teaspoonful of cream for each teaspoonful of condensed milk, and with this we may succeed. Practically the same difficulty may arise where plain milk is given much diluted with water, and may be remedied by increasing the amount of milk or by the addition of cream, or by the use of a diluted cream or "top milk," according to the method to be found in the more recent text-books upon diseases of children. An increase of both fat and proteids proves most serviceable in the largest number of cases. But great dilution of plain milk, so necessary in dealing with infants of feeble digestion, is less often practiced to a fault in well children than is the case with condensed milk, whose strength relatively to fresh milk is seldom understood by the laity or the profession, one part of condensed milk representing only 2½-3 parts of ordinary milk.

An error which is met with much more commonly in artificial feeding, is that of giving plain milk too little diluted to adapt it to the digestion of the infant. Here, if dyspeptic diarrhœa does not ensue, we have constipation often accompanied by evidences of colicky pain, with large, firm stools, which, when broken open, show white friable masses of undigested casein. The remedy is simple—further dilution of the milk, to a point where the proteids are digested, and the gradual addition of cream until the stools have a normal consistency and appearance, sugar being added to approximate the percentage found in breast milk. In adding the cream or raising the fat percentage, it is well to proceed slowly lest we disturb the stomach. Here, again, spitting up after feeding is a valuable danger signal.

Of constipation occurring during the use of proprietary foods, I shall not treat, as I do not recognize any of such foods as suitable for the exclusive nourishment of the infant, however useful they may be at times, to supplement milk feeding, or in certain emergencies, to take its place for a limited period during acute or chronic diseases.

Of other dietary measures which may be of assistance in overcoming constipation may be mentioned the use of well-cooked oatmeal water or jelly, as a diluent for the milk, or in older children, strained oatmeal given separately.

The addition of certain malted infant foods, or of non-alcoholic preparations of malt, may be of service from the laxative properties of the malt sugars. Beef juice, which is so valuable an adjunct in the feeding of children during the second half year, should be given, although it only occasionally produces a laxative effect. Where it seems indicated, I do not hesitate to give the juice of half an orange between feedings, once or twice a day, to children over six months old, although sometimes this may be followed apparently by an urticarial or lichenous rash, which disappears promptly on stopping the acid orange juice and administering alkalies. After the first year, the giving of the soft pulp of baked apples and stewed prunes accomplishes the desired result. These should be tried cautiously at first, as an occasional child does not bear them well.

Two special types of constipation remain to be considered. The first of these is the rachitic, which, while often primarily induced by the bad hygiene and improper diet which cause the rachitic condition, is also favored and exaggerated by the intestinal catarrh, the flatulent intestinal distention, and the weakness of both striped and unstriped muscle fibres so characteristic of the rachitic process. Here, not only must the diet be regulated and the starchy elements diminished, but often the usual antirachitic treatment, including cod liver oil, must be instituted before we shall succeed in producing normal evacuations.

The second class is that of one form of chronic intestinal indigestion characterized by large light-colored stools of the consistency of putty. Here, dietary measures are imperative, but medicinal treatment directed to the relief of the hepatic torpor may be of equal importance.

The influence of habit in securing regularity of evacuation has long been recognized, but the subject is usually dismissed with little more than the bare mention of the fact. The training of the bowels should begin at birth. The efforts of competent obstetrical nurses have shown that infants, who, from the first week, are placed upon the chamber, may be soon trained to have one or more movements per day. The child comes to know what is expected of it and will not soil the diapers. The time just after nursing or feeding should be chosen as the most suitable, for it is at this time that the peristaltic waves originated by the stomach in digestion extend to the intestine, and are then most active. A small chamber, warmed by pouring into it hot water, may be placed upon the lap of the nurse, and the child supported comfortably upon it, and protected by a light blanket. In children old enough to sit alone upon a chair when at stool, a proper support should be furnished for the feet, otherwise the abdominal muscles cannot be brought into proper play. This point is one very commonly neglected.

In such children as have stools of good consistency which are not readily expelled, or where the masses are hard, dependent upon delayed expulsion, massage of the abdomen, if properly applied, is invaluable and has repeatedly proved effective without recourse to other measures. Massage is peculiarly useful in the training of the bowel to act at definite periods. The method employed is important: the child is laid comfortably upon the back, and the warmed hand introduced from below upwards beneath some light, loose covering. The tips of the fingers should be applied at first lightly in the region of the cœcum and carried slowly up the right side of the abdomen to the hepatic flexure, describing small circular movements; thence transversely across the abdomen to the splenic flexure, and downwards to the sigmoid and the pelvis. The manipulation is then begun anew in the region of the cœcum. If the fingers are warm and the pressure is very gradually increased, the child will be less likely to cry, and we shall thus avoid any increased tension of the abdominal muscles. Five or ten minutes of such manipulation night and morning, or even once a day, is usually sufficient. No lubricant should be used, as it is desirable that the tissues of the abdominal walls should move with the fingers upon the subjacent intestines. However, where the psychical effect of an inunction is necessary to secure a faithful performance by the mother or nurse, any bland oil, cod liver oil, olive oil, vaseline, cocoa butter, may be employed. At the conclusion of the seance the child should be placed upon the chamber.

Finally, it should not be forgotten that where there is crying with defecation, and sometimes in its absence, anal fissures should be sought for, as their presence and the anticipated pain will lead the infant to resist the inclination to stool.

I do not hesitate to assert positively that in my experience it is now exceedingly rare to find a child who is artificially fed whose constipation cannot be remedied by intelligent modification of its diet. In beginning the treatment of a case of habitual constipation, it is usually advisable that the intestinal tract should be gently but thoroughly evacuated in order that the obstruction offered by the accumulated or hardened masses may be eliminated. For this purpose I prefer calomel in divided doses. It may be necessary at first to make daily use of mild laxatives which facilitate the training of the bowel and assure proper evacuations during a gradual increase of certain elements in the previous diet or the addition of new substances, but the laxatives should then be decreased and withdrawn as soon as practicable.

Too often we yield to the temptation to prescribe drugs rather than study out and remedy the essential cause of the constipation. The former give us quicker results and redound more evidently to the credit of our therapeutic acumen, but in resorting solely to their use under such circumstances we are not doing our duty by our patients or by ourselves. The temporary relief or masking of symptoms by therapeusis, when the ætiological morbid condition may be permanently removed by more painstaking application to our problem, approaches dubiously near to charlatanism.

Where a mild action only is necessary, the tablets of rhubarb and soda āā gr. iss, made up with oil of peppermint, may be dissolved and given once, twice or three times a day, especially in those cases which depend upon disturbed intestinal function. Where this is not sufficient, the fluid extract of cascara proves one of the most reliable of the well-tested laxatives, infants requiring from one to four minims thrice daily. Preparations of malt with cascara have been highly lauded by undoubted authorities. The fluid preparations of malt which have already been mentioned in speaking of the malted foods, under the head of dietetic resources, should again be mentioned here with the efficient laxatives. Cod liver oil, which there are good reasons for classing as a food rather than as a medicine, is peculiarly serviceable in those cases dependent upon poor nutrition, in which the addition of a fat is indicated.

In rather older children, where a more decided action is necessary, other drugs may have to be employed in varying combination to meet definite indications. But it is chiefly where the neglected constipation is of long standing, and where from over-distention the muscles of the lower bowel have lost their tone, that we need for any length of time call therapeutics to the assistance of dietetics.

The longer and more carefully I study my cases of constipation in infancy, the less I find that I need to resort to the use of laxatives for its cure.

For comparatively short periods enemata may be employed with advantage, but they are extremely capable of abuse. For occasional use they may be large, but when used daily the quantity of fluid should be small, the smallest that will stimulate the bowel to contract. Theoretical considerations lead us to the conclusion that cold injections excite more extended peristaltic contractions—a saline solution is less irritating to mucosa of the bowel, than plain water. Glycerine, a teaspoonful in a tablespoonful of water, is a stimulant, has a hydroscopic action, and is one of the best measures at our command.

For cases which habitually require assistance, suppositories of gluten or glycerine are preferable, as they avoid the loss of tone, which comes from frequent distention of the bowel by enemata, but the profession have been warned against the use for children of glycerine suppositories which are medicated. Where medicated suppositories are necessary, they should be made with cocoa butter, and the proportions of the ingredients controlled by the physician's prescription.

Much of the constipation of later life may undoubtedly be traced to irregular action of the bowels and the neglect of the formation of proper habits in infancy and childhood; so that when we look beyond the present and consider the ultimate results of intestinal torpor in years to come, the regulation of this function becomes imperative in every case, but we should endeavor to accomplish this by removing the cause through the employment of simple and rational dietetic and hygienic measures, remembering that the abuse of enemata and purgatives, as pointed out by Earle, will eventually diminish the sensibility of the mucous membrane and produce atony of the muscular coats of the intestine.

47 WEST FIFTY-SIXTH STREET.

SYPHILIS HÆMORRHAGICA NEONATORUM, WITH ERUPTION OF THE VARICELLAR TYPE.

BY WILLIAM S. GOTTHEIL, M.D.,
Professor of Dermatology, New York School of Clinical Medicine;
Dermatologist to the Lebanon Hospital, the German West-
Side, and the North-Western Dispensaries,
New York.

Hæmorrhagic eruptions are phenomena of interest both on account of their comparative rarity and of our meagre knowledge of the causes that determine their occurrence. In their commonest forms they appear as more or less extensive exudations among the elements of an apparently otherwise unaltered integument or mucous membrane, and are designated as petechiæ, vibices, ecchymoses, ecchymomata, or blebs when the epithelial layers remain intact, and as surface hæmorrhages when these latter are destroyed. Blood eruptions of this variety occur in simple purpura, in purpura hæmorrhagica or the spotted disease of Werlhoff, and in scurvy; in which affections they form the only, or, at all events, the most marked objective symptom of disease.

The ingestion of certain drugs has in isolated cases been followed by the appearence of a hæmorrhagic efflorescence in the form of purpuric spots or bloody wheals or vesicles. In other cases the effusion of blood occurs as an epiphenomenon affecting skin lesions characteristic of local or general diseases. Some of the commoner skin affections, such as urticaria and erythema multiforme, occasionally become hæmorrhagic, without this deviation from their normal course having any especial significance. Hæmorrhagic forms of the acute exanthemata occur as rare exceptions to the ordinary semiology of these diseases; of which the hæmorrhagic form of variola is perhaps the best known. In what may be called the chronic exanthemata, best typified by syphilis, this variety of eruption is of such infrequent occurrence that its very existence has been doubted. A sufficient number of cases of hæmorrhagic lues have, however, been recorded by competent observers, to definitely settle the question, more especially in the hereditary forms of the disease.

Hæmatidrosis or bloody sweat, and the hæmorrhagic phenomena known under the name of the bleeding stigmata, are among the rare curiosities of dermic lesions. The, as yet, unexplained constitutional condition known as hæmophilia or the hæmorrhagic diathesis, seems related, in some instances at least, to the occurrence of these unusual cutaneous lesions.

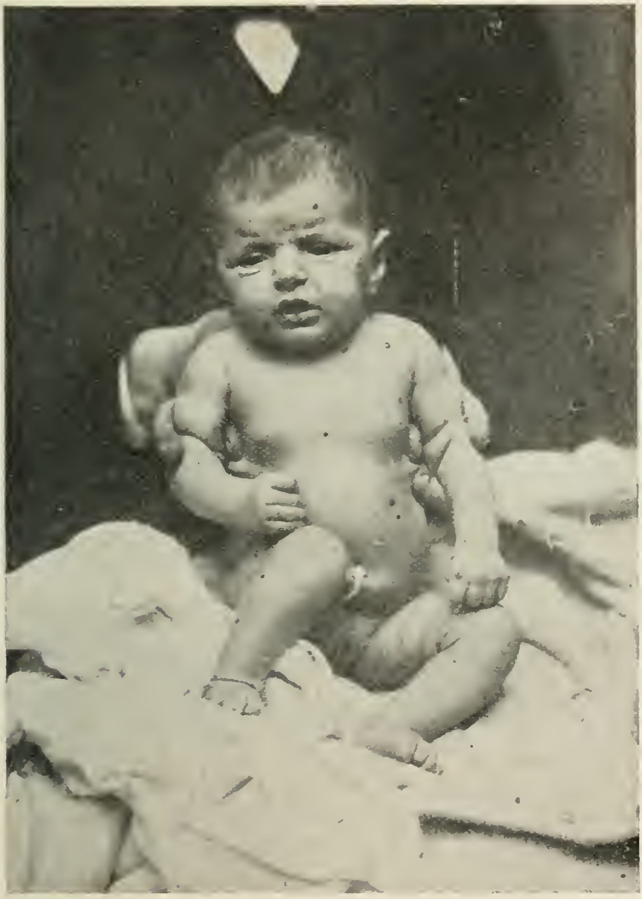
The case whose history I am about to present shows the unusual features of a hæmorrhagic eruption of the varicellar type occurring in an infant affected with multiple nævoid tumors, and accompanied by a hæmophilic affection that resulted in early death. It was seen several times in consultation with Dr. G. Wolf, for whose courtesy in placing it at my disposal and supplying me with the data I am under great obligations. The account is incomplete from the ignorance and prejudices of the parents. The opportunities for a close examination were limited. The photographs were obtained practically by stealth, and the exposures were made hurriedly, and with bad light. A blood examination was not permitted, and no examination was made after death for the very sufficient reason that $5000 was demanded for the privilege.

The patient, Annie R., was four weeks old when I first saw her. The family history was entirely negative. The father was a healthy, well developed man of thirty, and showed no trace of syphilis. The mother, twenty-eight years old, was inclined to suffer from hysteria, but was otherwise in good health. She showed no stigmata of luetic disease. Her menstruation was rather scanty. She had been married thirteen years, and had had five children, all living and healthy, save the patient. There had been no miscarriages. There was no history of hæmophilia in the family on either side.

The pregnancy of which this child was the result was normal; there occurred no shock or other incident of note during its course. The presentation was normal; and the delivery (by a midwife), though severe and painful, was of but short duration. The time from the rupture of the membranes until complete delivery was not more than twenty minutes. Only the ordinary amount of blood was lost. The puerperium was normal.

At the time of birth there was noticed on the child a large tumor on the skin of the left lumbar region above the crest of the ilium, and several other similar but smaller tumors on other parts of the integument. The child remained apparently well until the seventh day. It then came under Dr. Wolf's observation. During the second week a sudden and violent hæmorrhage, the cause of which was not known, occurred from the larger tumor.

This hæmorrhage continued until the end of life, setting in promptly as soon as the bandages and compresses were removed. Neither styptics, compression, nor the actual cautery had any permanent control over it. At about the same time there occurred an eruption of versicles, apparently filled with blood, over the body. These also have persisted; no new lesions have appeared, but the individual vesicles have become somewhat larger. There had been some slight hæmorrhage from the navel cicatrix, and some from the nose. Occasionally there has been blood in the



SYPHILIS HÆMORRHAGICA NEONATORUM IN AN INFANT OF THREE WEEKS; HÆMORRHAGIC VESICLES.

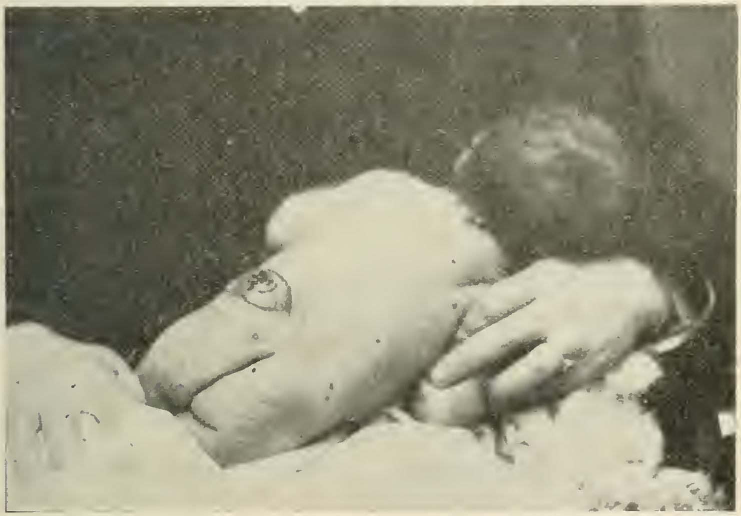
stools, not in streaks, but intimately mixed with the excrement; and once the child vomited a little blood. The child's general condition has not been bad, and it has taken nourishment freely and slept well.

And, notwithstanding the portentious history, the child, when I first saw it at the end of the third week, looked well nourished and was in fairly good condition. It showed none of the ordinary evidence of hereditary syphilis; the face was not weazened; there were neither snuffles nor hoarseness; and there were none of the characteristic lesions of the skin or mucosæ. Posteriorly, in the left lumbar region, there was a prominent, bluish-red, nævoid tumor, 2 x 1½ inches in size. On the center of the surface of this tumor, and occupying about half its area, was a large, apparently eroded spot, from which blood was slowly trickling. There was a similar bean-sized nævus on the left loin, and two or three smaller ones upon the limbs. There had been no hæmorrhage from any save the largest tumor.

Scattered over the body, face, and limbs were a number of isolated and distinctly vesicular lesions. They were moderately acuminate or slightly flattened, small French pea-sized, and situated upon faintly reddened bases. There were ten of these lesions upon the face, eight upon the abdomen and chest, about the same number upon the back, a few upon the backs of the hands, and three upon the palms. The soles and scalp were free. There were two small lesions upon the mucous membranes of the lips, and one upon the hard palate. These latter, of course, were not vesicular, but appeared as circular erosions similar to those commonly seen upon the mucosæ in conjunction with general vesicular eruptions. The total number of the vesicular lesions was between thirty-five and forty. They were all exactly alike, save for slight variations in size. They were characteristic varicella vesicles, and would unhesitatingly have been pronounced such, save for one circumstance. Instead of being filled with a clear or slightly turbid serum, they were dark-red in color, and evidently contained either blood or a blood stained fluid. There was no apparent hæmorrhage from the eroded versicles in the mouth, whilst the navel and the large nævus began to bleed very freely as soon as the compresses were removed.

The subsequent history of the case can be dismissed with a very few words. The bleeding from the large nævus proved entirely uncontrollable; two violent hæmorrhages occurred from it during the fifth week, probably occasioned by carelessness in the manipulation of the bandages. The vesicular eruption remained in *statu quo*, save that the lesions became a little paler and flatter. In the sixth week persistent vomiting and diarrhœa set in, and the temperature began to rise for the first time. There was blood in the discharges from the stomach and bowels, and finally blood in the urine. At the end of that week the child died with a temperature of 106° F., and an uncountable pulse. The vesicular eruption remained unchanged after death.

The main interest of the case rests, of course, with the diagnosis. Was the case one of sepsis, complicated with a varicella-like eruption, or with a true varicella? Or was the varicella eruption accidental, due possibly to treatment? Was it an ordinary varicella occurring in a hæmophilic infant? Or, finally, was it a case of syphilis of the type known as the hæmorrhagic syphilis of the new-born? At the outset I regarded it as a varicella; but more careful study caused me to change my opinion.



SYPHILIS HÆMORRHAGICA IN AN INFANT OF THREE WEEKS; HÆMORRHAGIC VESICLES—LARGE NÆVUS.

The symptoms present during the next week of life, together with the hæmorrhages, might favor the diagnosis of sepsis. But the former were entirely absent during the first five weeks of life, and sepsis would not explain the vesicular eruption. It can only be considered as a complication occurring at the end of the case.

Hæmorrhagic eruption of various forms have been noted as following the use of certain medicaments. Thus Goldenberg* has recorded a case in which the exhibition of rhubarb was followed by an efflorescence of hæmorrhagic pustules upon the backs of the hands, which disappeared when the administration of the drug was stopped, and twice recurred when it was again taken. Litten† saw a case in which the same drug caused the appearence of flat hæmorrhagic wheals. Honing's‡ case developed a flat hæmorrhagic exanthem under the influence of large doses of iodides. Cases have also been recorded as due to the use of salicylic acid and other drugs. No such agents had, however, been used in the case under consideration; and the concomitant hæmophilic symptoms, together with the septic ones that appeared towards the end of the case, effectually precludes the making of any such diagnosis.

(*To be Continued.*)

Hæmorrhagic Cyst of the Spleen.—Baginsky reports the case of a girl of twelve years whose illness began after a fall on the abdomen. A large tumor occupied the left hypochondrium, fluctuating above, but solid below. Puncture showed the presence of a brown fluid, negative for echinococcus hooklets. Examination of the blood proved the number and proportion of corpuscles to be normal. Operation was performed because of the increased growth of the tumor and its influence on the general health. A large hæmorrhagic cyst of the spleen was found, two litres of fluid (altered blood) being evacuated. Sections through the cyst wall showed dense connective tissue and normal spleen substance. The child recovered perfectly and was discharged in excellent health. The author refers to another case which proved fatal and occurred in a girl of seven years. At the autopsy three cysts were found in the ductus choledochus, resulting from chronic inflammation and consequent retention of the bile. Both cases are to be looked upon as of extreme rarity in childhood.—*Berlin Klin. Wochens.—American Journal of Obstetrics.*

---

* New York Medical Journal, December, 1889.

† Therapeutische Monatshefte, December, 1890.

‡ New Yorker Medicinische Monatsschrift, November, 1892.

Clinical Memoranda.

A CASE OF DIPHTHERIA.*

BY WILLIAM CHEATHAM, M.D.,

Professor of Ophthalmology, Otology and Laryngology in the Louisville Medical College, Louisville, Ky.

I have had a case recently which beautifully illustrated the effect of antitoxin in the treatment of diphtheria. A child six years of age had been sick for several days, and had been treated by the family physician for what was supposed to be a case of ordinary follicular tonsillitis. I was called in consultation and found a well-marked case of diphtheria involving the larynx, the lateral walls of the pharynx and base of the tongue. If I had been called to see this little fellow before the introduction of antitoxin I would have advised an immediate intubation. He had a spasmodic cough, and was breathing very badly; he had paroxysms of bad breathing in which he would get quite blue in the face. I gave him an injection of 2000 units of antitoxin, which was repeated in twelve hours. It was to be again repeated in twelve hours if relief did not follow the first two injections. Only two injections were used, and the child made a prompt recovery.

Dr. Pusy, who has probably had the largest experience of any Louisville physician in the use of antitoxin, tells me, taking ten cases where the intubation tube would formerly have been used, that seven out of the ten will be promptly relieved by the injection of antitoxin. I have never seen any bad after-effects of antitoxin to which attention has been called by several writers, and I have used the remedy in a great many cases.

Fever and High Pulse in Children.—Graham (*Dunglison's College and Clinical Record*, December, 1897) points out that a high pulse-rate or a moderate amount of fever in an infant does not necessarily mean serious illness unless kept up for some time. Slight causes are sufficient to produce marked circulatory and temperature disturbances.—*Medicine.*

---

* Reported to the Louisville Clinical Society.

Address.

THE PATHOLOGY OF ANTE-NATAL LIFE. AN ADDRESS DELIVERED BEFORE THE GLASGOW OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.*

BY J. W. BALLANTYNE, M.D., F.R.C.P.E., F.R.S.E.,
Lecturer on Midwifery, Minto House, Edinburgh; Examiner in Midwifery, University of Aberdeen.

GENTLEMEN,—It is an inadequate and inaccurate view of the life of the individual which regards it as beginning with birth and ending at death. Theology teaches us that death does not end all; and no obstetrician can be in doubt that birth does not begin all. Birth does not mark a beginning, but a stage in life's progress. Birth is in one sense a beginning, it is the beginning of post-natal life; but the very words used imply that there has been an ante-natal life. Further, the post-natal is independent of the ante-natal; on the contrary, it is largely the direct continuation and outcome of it. The life is unchanged, but the environment has been altered; birth marks the change from surroundings which are intra-uterine to those that are extra-uterine. The transition is abrupt and the surroundings are very unlike, nevertheless the life is continuous.

THE PERIODS OF LIFE—POST-NATAL.—By popular custom and with the consent of science, extra-uterine or post-natal life has been divided into periods. There is the period of old age with its terminus, death; there is the time of middle or adult life; there is youth; and there is childhood or infancy. Even in a strictly scientific sense, however, death is not really the terminus of life, for in many cases before that event has occurred the individual has thrown off a vital cell which impregnating another unit of life or being impregnated by it has carried on the existence of both. Each individual organism consists then of a perishable part, which in point of size bulks largely, and of an imperishable part, microscopic in size but intensely vital in property. The imperishable part modern science has called the germ-plasm, and its imperishability is denominated its continuity.

Extra-uterine is linked to intra-uterine life by the short period known as that of the new-born infant. Nevertheless, although it only lasts for about a month, most important physiological changes are going on in it. It is a time of metamorphosis; organs which during intra-uterine life have had little or no call put upon them are suddenly brought into functional activity, while many of those which have been physiologically active in fœtal life begin to atrophy from disuse. The organism is adapting itself to its new environment.

---

*Abstract from the Glasgow Medical Journal, April, 1898.

ANTE-NATAL LIFE—PHYSIOLOGY.—Like post-natal life the antenatal existence of the individual may be marked off into periods. These are the fœtal, the embryonic, and the germinal epochs. During the first of these, the fœtal period, the organism shows its vitality chiefly by growth along lines which have been already definitely laid down. In this respect it resembles the post-natal periods of infancy and youth. It is true that the intra-uterine environment has very distinctive and peculiar characters (the unborn infant exists in a fluid medium of practically constant temperature, it is protected to a large extent from traumatism by the maternal structures, and it is shut in from the light); further, the fœtus has several of its organs almost inactive and its most important and most active organ, the placenta, is extracorporeal; nevertheless, the chief phenomenon of fœtal life is growth, rapid and continuous, along lines already indicated. Within seven months, which is the length, roughly speaking, of fœtal life in the human subject, the organism increases from a structure one inch in length to one measuring twenty inches, and its increase in weight is proportional.

During embryonic life, which may be regarded as beginning with the differentiation of the three layers of the blastoderm and ending about the end of the second month, a very different process is going on. There is growth as in the fœtal period; it is not, however, simple increase but evolution or development that is the striking feature of the life of the embryo. The lines along which future growth is to take place are nearly all laid down in the embryonic period. The physiology of the embryo is development, that of the fœtus is growth. As in the history of the rise of a great modern city there is record of a stage in which the main avenues of traffic are sketched out and natural obstacles overcome or utilized, to be followed by a period during which growth goes on along the lines of the plan, so in the story of ante-natal life there is the embryonic period, in which the cellular elements are arranged in groups to form organs, to be followed by the fœtal, in which these organs simply increase in size, and by their activity lead to the growth of the whole organism.

About germinal life in the human subject we know little, but it may be regarded as the period which ends in the mysterious phenomena of germ and sperm maturation, of the expulsion of the polar globules from the ovum, and of the atrophy of the female element of the sperm-cell, and of the impregnation of the ovum by the spermatozoon, with the resulting formation of the morula mass. Prior to impregnation the ova and spermatozoa have simply led the life of specialized cells in the body, the former in the female, the latter in the male. Doubtless they have been impressed to a certain extent with the individuality of the organism, with what may be called the peculiarities of its vitality. Further, these cells are the descendants of others which have in their turn been component parts of other organisms which have also had their individuality. So in the earliest epoch of antenatal life, just as in the later epoch of post-natal existence, we find ourselves confronted by the continuity of vital action; the individual is the link which enables the vitality to be continuous.

Before passing to the consideration of pathology in these relations, I must point out that whilst ante-natal life is thus divisible into three periods, these are not sharply marked off from one another any more than are the epochs of post-natal life. One part of the organism may be yet in the embryonic stage while the others are in the fœtal phase. An example of this is met with in the slower evolution of the limbs as compared with the trunk of the body and head, and probably no two parts pass out of the embryonic into the fœtal condition at just the same time. To revert to the comparison I have already instituted, the progress of a city is not equal throughout, one part, *e.g.*, the suburbs, may be little more than planned when another, *e.g.*, the center, is already built. Just as the first month of extra-uterine life, more than any other, is a time of metamorphosis and of transition, so the third month of intra-uterine life, more than any other, is characterized by readjustment and by change. Most of the organs pass at this time from the embryonic into the fœtal state, just as in the first month of life most of them again pass from the fœtal into the infantile condition. The bearing which this form of transition from one period to another has upon pathology will be soon made apparent.

ANTE-NATAL PATHOLOGY.—Post-natal and ante-natal life have this, at least, in common, that they are both subject to disease and death. In the very springs of life there is the possibility of death; the ante-natal death-rate must be very high, and, I doubt not, that all estimates which have been formed of it fall below the reality. Short of actual death, however, there is pathological change, and there is a morbid anatomy of intra-uterine life which has not up to the present time received the attention that it demands in view of the far-reaching effects it has on post-natal life. The pathology of ante-natal life is a subject which has been comparatively little studied; and the cause of this neglect has been not single but complex. The inherent difficulty of the research, the practical impossibility of exact diagnosis, the discouraging results of attempts at ante-natal therapeusis, the delayed progress of the study of ante-natal physiology, and the conflicting views regarding human embryology, have all played a part in discouraging investigations; but probably the most potent factor in delay has been the simple circumstance that the subject dealt with *ante-natal* affairs. The difficulties were not insurmountable; but investigators have been held back by the wide-spread belief that (so to say) the game was not worth the candle. The mercantile value, if I may so put it, of fœtal life has been placed very low compared with that of the adult or of the child. In no country in the world, save that in which the population is stationary or diminishing, does the necessity of conserving and preserving fœtal life obtrude itself upon the notice of the political economist or of the physician. The specialist in ante-natal disease, even in these days of specialism, is not wanted. Beyond all these reasons which have led the student to neglect the pathology of ante-natal life, I believe there lies yet another. There is, I think, a very prevalent notion that ante-natal pathology is not subject to the same laws as post-natal, that it cannot be regarded as similar to it—that it is, in fact, something apart, something mysterious. What I wish to try to show in this address is that in all probability the causes of morbid processes are the same in post-natal and in ante-natal life. That the effects produced by these causes differ markedly there is no gainsaying; but the differences are to be regarded as due to altered environmental conditions and to the peculiarities in the structure of the organism acted upon.

I do not suppose that anyone doubts that the same etiological factors in pathology are present in all the periods into which extra-uterine or post-natal life has been divided. The young, the aged, and the middle-aged are alike subject to the influence of injuries, of poisons, of microbes, and of parasites. It is true that at certain ages the individual is more liable to certain forms of disease and more or less free from others. It is also to a small extent true that some diseases show certain slight differences in their manifestations according to the age of the person attacked by them—an example of this is found by contrasting the rheumatism of middle life with that of childhood—but manifestly these differences are not due to variations in the nature of the causes acting, but to alterations in the structure of the parts acted upon and in the environmental conditions. Peculiarities of this kind are specially evident in the diseases of the new-born infant, some of which have almost a pathology of their own, and it is precisely during this short period in extra-uterine life that the organization of the body differs most from what it afterwards becomes. Such maladies as jaundice of the new-born, sclerema neonatorum, trismus neonatorum, and Winckel's disease owe their peculiar characters not to anything unusual in the causes which produce them, but rather to the fact that the causes are acting upon organs and tissues which are in a state of transition between the fœtal and the infantile stage. It is probably partly on this account also that these causes produce such fatal results, for, as everyone knows, the mortality in the first days of life is truly appalling.

PATHOLOGY OF FŒTAL LIFE.—During fœtal life, as distinguished from embryonic, the organism is subject to diseases. Morbid causes acting upon the fœtus produce diseases in it. More than ten years' study of the problems of ante-natal pathology has led me to the conclusion that the fœtus is liable to the same diseases as the infant, the child, and the adult. It enjoys a partial immunity from the attacks of certain parasites which produce skin diseases in extra-uterine life, and it is to some extent protected from external violence by the maternal structures and the liquor amnii. On the other hand it is apt to be affected with certain maladies in a peculiarly aggravated form, and it is exposed to one gross traumatism, parturition. Nevertheless it is, I believe, true that the morbid causes which act upon the fœtus are identical with those which are effective in later life. The peculiarities of fœtal maladies are largely due to the peculiarities of fœtal environment and of fœtal physiology. Some illustrations of this may be given.

Fœtal ichthyosis of the grave type is a disease in which the thickening of the epidermis is of so marked a kind that it has on this account been asserted by some that it is not the same malady as the ichthyosis of extra-uterine life. The probable explanation, however, seems to be that the intra-uterine environment permits the continuance of life with a degree of cutaneous morbid change which would render post-natal existence impossible. As a matter of fact infants with advanced fœtal ichthyosis rarely survive their birth by many hours—the horny epidermic plates surrounding the mouth make suckling impossible, and the interference with the cutaneous functions leads to congestion of the internal organs and especially to inflammatory states of the lungs and kidneys. Probably also the enormous epidermic proliferation may be connected in some way with the existence of that peculiarly fœtal and transient structure, the epitrichium. General fœtal dropsy, also, is a disease, or rather a symptom of several diseases, which reaches an altogether unprecedented degree of development *in utero*. With marked and deforming general anasarca, and with much fluid in the cavities of the peritoneum, pleura, pericardium, and cerebral ventricles, the fœtus is still able to drag on in the uterus an existence which lasts till birth, even until birth at the full time. This peculiarity of fœtal diseases I, some years ago, dubbed their "potential mortality." The fœtal environment and mode of life permit the existence of an amount of disease quite incompatible with the maintenance of extra-uterine life—the fœtus is potentially dead, it will die as soon as it is born. Further, the fact that certain organs in the fœtus are almost or quite quiescent, *e.g.*, the lungs, makes it possible for them to be seriously altered in structure without being affected in function; as soon, however, as birth occurs, a sudden call is made upon these organs, and at once their potential morbidity becomes real. Truly, in many cases, it may be said that the cause of death is birth.

Fœtal maladies differ not only in degree but also in character from those occurring after birth. Examples of this are found in fœtal small-pox and fœtal typhoid. At the time of birth the variolous eruption may show itself in the papular, pustular, or cicatricial form, according as the disease had existed a longer or a shorter time before labor supervenes. The face is frequently almost free of the eruption; the postules resemble those met with on mucous surfaces rather than on the skin in extra-uterine life: there is a less degree of suppuration; crusts are seldom formed; and the resulting cicatrices are feebly marked. These peculiar characters of fœtal variola find their explanation in the fact that *in utero* the skin is kept moist by the liquor amnii, and is not under the influence of light and the atmospheric air. In fœtal typhoid fever it is rare to find the characteristic intestinal lesions, a circumstance which may be due to the comparatively quiescent condition of the bowel in ante-natal life, or to the infection of the fœtus by the way of the placenta, instead of by the mouth and stomach. In post-natal life it is uncommon to meet with cases of typhoid without intestinal lesions, although such do occur; in the ante-natal state it is rare to find cases with them. This leads me to advert for a minute or two to the relation of the placental economy to fœtal diseases.

The fact that an unborn infant is brought into intimate and peculiar relations with the chemico-vital processes of the mother by means of the placenta is, at the same time, an advantage and a disadvantage. It is on account of this parasitic dependence that the fœtus is able to continue an intra-uterine existence with several of its viscera in a far advanced stage of disease; but it is also on this account that it is exposed to fevers and microbic conditions affecting the mother, and to morbid alterations of her blood. We do not yet fully understand the mechanism which regulates the transmission of diseases from mother to fœtus, but it would seem that under apparently similar conditions (*e.g.*, in twins) the infection may or may not pass through the placenta, and it is apparently necessary to believe that hemorrhage in the placenta is not a *sine qua non* in the cases in which germs or their products traverse the afterbirth. Recent investigations on the structure of the amnion and on the liquor amnii suggest that possibly infection may occasionally find its way from the maternal blood through the amniotic fluid to the mouth and stomach of the fœtus. *In utero* also, as in after life, the same law of individuality may hold good which brings it about that a certain percentage of organisms, placed under apparently identical conditions of risk of infection, escapes it. The placenta, therefore, is not an unmixed boon to the fœtus; but, further, it may become an immediate and pressing danger. It is, in its fœtal portion, an organ of the fœtus although an extra-corporeal one; it is also the most vulnerable of the organs with which it is supplied. It results from this that placental lesions very quickly endanger the life of the unborn; and everyone knows the frequency with which such are followed by the premature termination of pregnancy.

What has been said concerning the transmission of diseases through the placenta or liquor amnii to the fœtus may be repeated with regard to the passage of poisons such as lead, arsenic, morphia, and alcohol. Less, however, is known regarding their action in producing fœtal diseases, but this much can be affirmed that lead poisoning in the mother in pregnancy may be followed by the birth of an infant with paralytic and other symptoms of saturnism. The experiments of Porak go to show that the placenta may with certain poisons do what the liver accomplishes in later live, namely, store them up in its substance. It may thus prevent their passage to the fœtus, but, in doing so, the placenta may have its own functions so far interfered with as to lead to abortion or premature labor.

During fœtal life, then, the organism is subject as it is in later life, to the maladies which are caused by microbes and their toxines and by poisons, mineral and vegetable; it may also be affected by diseases which, in the absence of fuller knowledge, we must call idiopathic; and it may be wounded or bruised even inside the maternal protecting structures. Its pathology, therefore, agrees in its etiology with that of later life, but differs in some of its characters in accordance with the peculiarities of the environment. The fœtus also may die *in utero*, and the well-known *post-mortem* changes, macerative in character rather than putrefactive, evidently owe their distinguishing characters to the intra-uterine surroundings which, in the great majority of cases, prevent the access of air to the dead tissues. It has sometimes been affirmed that death *in utero* was unaccompanied by rigor mortis; but I believe that this is not correct, and I have elsewhere stated my reasons for this belief at considerable length. The rigor mortis which affects the fœtus may differ in some of its features from that of the infant, *e.g.*, in the time of its onset and persistence and in its degree, but that it occurs is, I think, undoubted.

PATHOLOGY OF EMBRYONIC LIFE.—Quite distinct from the pathology of the fœtus is the pathology of the embryo. The morbid states which arise during embryonic life are so peculiar, so special, that it is no wonder that they have been placed by themselves in text-books of pathology and regarded as something apart. It is only now beginning to be recognized that the pathology of the embryo is after all a part of general pathology, and is subject to the same laws. In a word, *embryonic pathology is teratology;* and, as Duval pithily puts it, teratology is truly a chapter, but also a very special chapter, of pathology ("La tératologie est donc bien un chapitre, mais un chapitre tout particulier, de la pathologie"). Let me indicate briefly what this great generalization means.

It will be remembered that the life of the embryo consists in the evolution of the three layers of the blastoderm into the complex aggregate of organs and tissues which make up the body of the fœtus. The embryo has no other functions than this—this is its one function. Now, when a morbid cause of any kind acts upon a fœtal or adult organism it produces changes which interfere with its functions, *e.g.*, nutrition, respiration, excretion, and the like. In this way a disease is set up. When the same cause acts on the embryo it interferes with its one function, the formation of organs. In this way a monstrosity, a malformation, or a structural anomaly is produced. In the one case the result is pathological, in the other it is teratological. Complete proof is not yet forthcoming, but I believe it will be furnished, showing that the causes of diseases are also the causes of monstrosities. The way in which these causes act is no doubt different, and the organism upon which they act and its surroundings are widely different; it is in this manner that the vast difference between the results, a disease and a monstrosity, is produced. We speak of pathogenesis in the one case, and of teratogenesis in the other; but the same ultimate causes, traumatism, toxines, microbes, poisons, lie behind both.

The experiments of Dareste, Panum, Warynski and Fol, Lombardini, and especially of Féré, have thrown much light upon the causes of monstrosities and their mode of action. The embryo chick is the organism in which it has been found most convenient, artificially, to produce monstrosities, although a certain number of observations has been made on mammalian embryos. In the earlier experiments the means employed consisted in partially varnishing the eggs during incubation, in raising or lowering the normal temperature in the incubator, and in shaking the eggs or wounding their contents. By these measures it was found possible, constantly, to produce a certain percentage of chick monstrosities; but it was not very evident how the information thus obtained could be applied to the elucidation of human teratology. Far more valuable results have recently been obtained by Féré, who has experimented by injecting into the albumen of the egg at the beginning of incubation various substances known to be pathogenic when acting upon the adult or fœtus. The results have been teratogenic.

Among many substances, which have been found to be teratogenic, may be mentioned the alcohols and isoalcohols, nicotine, the toxines of tubercle and diphtheria, mercury, atrophine, hydrocyanic acid, and morphine. To a certain extent, also, the agents which are most pathogenic or most poisonous are also most teratogenic. The alcohols can be arranged in an ascending series according to their power of producing terata, beginning with ethylic alcohol and going on to methylic, propylic, butyric, and amylic. It may yet be found possible to group all the substances which act teratogenically in a series according to their relative virulence, and it will then be interesting to note whether those most powerful teratologically are also most effective pathologically. Certainly the alcohols which are most toxic are also most teratogenic.

While the ultimate causes of monstrosities are doubtless such agencies as have been referred to above, their mode of action presents very special and difficult problems for solution. During the embryonic period there seems to be good reason to believe that the amnion has a very important bearing upon these problems. It is the presence of the placenta which, to a large extent, impresses upon fœtal pathology its peculiar characters; and in the same way it is the presence of the amnion that accounts for much that is distinctive in the pathology of the embryo. That the allantois and unbilical vesicle also play a part in producing malformations is, I believe, true; but it is specially the amnion that moulds the structural destiny of the embryo. The importance of the teratogenic *rôle* of the amnion has been fully demonstrated experimentally by Dareste and others. One of the earliest phenomenon in embryology is the development of the extra-embryonic somato-pleure to form the amnion, and anything which interferes with its evolution will cause disturbance in the growth of the embryo. It is probably on account of defective development of the head-and-tail folds that the terata with anencephaly, spina bifida, and sympodia are produced. The delayed separation of the amnion from the body of the embryo, as in cases of absence of liquor amnii, will result in the action of pressure; and the effect of the pressure will be the arrest of development in the stage then reached. The rest of the organism not subject to this pressure will go on developing, and so, ultimately, an embryo will be produced with one part or several parts in a stage of evolution anterior to that reached by the rest. A temporary and transient phase has for part of the body become fixed and permanent. If one imagine a continuous photograph of the evolution changes in the organism, and if one further imagine that the changes in the head, thorax, abdomen, and limbs are represented by parallel photographic strips, then it is easy to understand that so long as the strips continue to move synchronously, as in a cinematograph, the picture of the phenomena will be normal and perfect. So soon, however, as one of the strips stops moving or slackens its rate of progress, something very abnormal, monstrous in fact, will be presented to the eye of the observer.

Just as the transition from fœtal to infantile life is marked by a terrible mortality, so, I believe, the passage from the embryonic economy to the fœtal is accompanied by a great destruction of embryos. Everyone knows how common is abortion at the second and third month; and, while several causes have been adduced to explain this, it is reasonable to suppose that the radical changes which marked the replacement of embryonic conditions by the fœtal environment lead to embryonic death, and so to emptying of the uterus.

Now, while it is true that morbid causes produce diseases in the fœtus and monstrosities in the embryo, it is not always possible to distinguish between what is a disease and what is a monstrosity. The reason is not difficult to find. The whole organism does not pass out of the embryonic into the fœtal stage at the same time: one part or organ may be yet in the stage of construction, of evolution, when the part next to it has taken on its mature form, and has become functional. An instance of this is met with in the limb-buds, which are still embryonic when most of the internal organs are in the fœtal state. A morbid cause, therefore, acting upon two parts of the organism may produce a disease in the one and a deformity in the other. This is one reason why the so-called fœtal bone diseases and the malformations of the limbs are so difficult to understand. What we regard as peculiar bone diseases, and try vainly to classify with post-natal osseous lesions, may be really malformations; while more or less complete absence of the limbs or their rudimentary state may be either the results of disease or of arrested development.

Even in post-natal life some few parts of the body remain in an incompletely developed form for some years. A good example of this is found in the uterus, which does not take on its adult characters or begin to functionate till the period of puberty. If, as sometimes happens, the uterus retain its fœtal or infantile form in adult life, the result produced is a malformation, and is usually described as such. In this sense there is, as it were, a projection of the embryonic state through the fœtal into the post-natal. Cases such as the above, while they increase the apparent complexity of the problems of pathology, serve to emphasize the general principle that morbid causes acting upon embryonic states produce malformations or monstrosities, and that the same causes produce diseases when they influence fully formed organs and tissues.

PATHOLOGY OF GERMINAL LIFE.—Comparatively little is certainly known of the pathology of the germ, and what information we possess has been almost entirely gained from the study of the lower animals, and even of invertebrate organisms. The great phenomenon of germinal life is impregnation with its antecedent phenomena of maturation and polar extrusion, and its subsequent phenomena of nuclear division and the formation of the morula mass. It is, therefore, to be expected that morbid causes, acting during the germinal epoch, will manifest themselves in results determined by the physiological characters of germinal life. There will be a disturbance of the normal progress of the phenomena of impregnation and segmentation. Experiments upon such organisms as ascidians and echinodermata have shown that such morbid causes as quinine, chloral, and cold, stop karyokinesis, while partial destruction of the segmentation spheres led to the production of monstrous fractions of individuals ("monstres fractions d'individu"). These experimental investigations by Hertwig, Chabry and Roux, and others, prove that monstrosities of a very advanced type result from the action of pathological agencies (traumatic or toxic) during the segmentation of the ovum. It is difficult to draw any deductions therefrom regarding the human germ, for it is scarcely conceivable that such a rudimentary organism as the fraction of an ovum could continue to develop *in utero;* but the well-known placental parasites, which are really only portions of a fœtus, are brought to the full term through the presence of a normal twin, and in them it may be legitimate to look for resemblances to the artificially produced ascidian fragments.

The phenomena of impregnation may also be interfered with, and the tendency of modern research is to regard the very interesting terata, known as double monsters, as due to such interference. What is known as polyspermy, or the entrance of more than one spermatzoon into the ovum, is now the most strongly supported theory of diplogenesis. Further, it is possible that certain very rudimentary and puzzling structures, such as dermoid cysts and teratomata, may originate in absence of the normal male element in impregnation and in a consequent imperfect parthenogenetic development of the ovum.

The pathology of germinal life is, therefore, probably teratological in type, and so resembles the pathology of the embryo. At present it would be unprofitable to attempt to classify teratological productions according as they were developed in the germinal or embryonic epoch of ante-natal life. The only suggestion that may be hazarded is, that while monstrosities by defect are characteristic of embryonic pathology, monstrosities by excess (polysomatous terata) seem to be the special product of germinal pathology. Even this generalization, however, is not very firmly based.

RECAPITULATION—ETIOLOGICAL UNITY.—So far, therefore, as our knowledge of the pathology of post-natal and ante-natal life has carried us, it would seem that the same morbid causes are in action in all the periods into which the existence of the organism has been divided. The etiological factors of post-natal pathology, such as microbes and their toxines, poisons, mineral and vegetable, and thermic and truamatic states, have been found to be also the causes of pathological developments in the fœtus, embryo, and germ. It has further been shown that probably the most effective morbid agencies in post-natal life are also the most active before birth. The results of the action of these factors differ widely, but the differences can be explained by differences in environment and in the structure of the organisms acted upon. Teratology is thus brought into line with pathology, of which it is simply an obscure but not unimportant department; and teratogenesis is seen to be simply pathogenesis acting on an immature organism. There is a unity in morbid causes.

HEREDITARY TENDENCIES.—Manifestly this would be an incomplete sketch of ante-natal pathology if it contained no reference to hereditary tendencies. In addition to the external agencies, microbic and toxic, which determine disease in post-natal life, there is the predisposition to certain maladies, and the incomplete or complete immunity against others which heredity brings to the organism, and which gives to the organism its individuality. In ante-natal life, also, hereditary tendencies are evident both in the fœtal and in the embryonic periods. Many fœtal diseases, such as ichthyosis, general dropsy, fœtal rickets, etc., are hereditary. In the nature of things it is seldom that direct heredity can be demonstrated, for, as has been explained, infants with such maladies rarely live, and therefore their progeny cannot be referred to; but that form of heredity known as family prevalance is very common in most fœtal maladies. I have elsewhere referred to many instances of this in congenital skin lesions, and have specially noted cases in which a woman had by one husband healthy children, and by a second spouse ichthyotic or dropsical infants. The sperm as well as the ovum may carry these tendencies.

In embryonic life, also, the same tendencies are met with, and I have recorded cases of the birth of two and even of three anencephalic fœtuses in the same family. I have also met with polydactyly in several generations, and in several individuals in the same generation. One very interesting history I may give here. It was that of a woman showing a defective development of the muscles of one thumb; her first child had hydrocephalus and absence of one thumb, and her second fœtus was anencephalic and had one thumb represented by a formless mass of skin-covered adipose tissue. Further, nothing is better known in the artificial production of monstrosities than the individuality of the germ, for no matter how strongly teratogenic the agency may be (*e.g.*, hydrocyanic acid), some organisms will escape its action and develop normally. I might extend and apply these observations to germinal life, and refer to the heredity of twin-bearing, and so forth, but I must draw this already too long address to a close. Suffice it to say, that it is evident that in addition to morbid causes coming from without, we have to deal constantly with hereditary tendencies for or against pathological developments existing already in the organism. This is true of the pathology of all periods of life, ante-natal as well as post-natal; and the nett result is the health or disease, deformity or malformation, of the individual.

In this communication I have refrained from touching upon any of the aspects of ante-natal pathology save those of its etiology. I have said nothing of the means of diagnosis of monstrosities and fœtal disease before birth, although note-worthy advances have to be recorded in this relation; I have passed over the symptomatology and clinical history of such cases, and have referred not at all to their obstetric aspects; the prophylactic treatment of ante-natal malformations has been left unconsidered, as have also their medico-legal bearings.

Congenital Gastric Spasm.—J. Thomson (*Scottish Medical and Surgical Journal*) under this title describes a disease which produces and is characterized *post-mortem* by hypertrophy and stenosis of the pylorus. He has collected about fifteen cases of the disease, and describes one fully. The children may be attacked directly after birth, or after an interval of some weeks, by vomiting, which becomes progressively worse and does not react to ordinary means. Liquid is retained for long periods in the stomach, showing that not only is there pyloric obstruction, bur also some impediment to absorption in the stomach. The abdomen is lax from collapse of the intestines, and the hypertrophied pylorus may be made out. The subjects live from three weeks to six months; in some cases where the hypertrophy was most marked, life was extremely short, so that it appears probable that the change began on fœtal life. The enlarged pylorus is due to muscular hypertrophy, and not to fibrosis; the muscular hypertropy extends to the adjacent parts of the stomach, and is due to constant spasm, which in turn is explained by the nervous inco-ordination due to delayed or imperfect development. It is unlikely that spasm is due to some irritating quality of the liquor amnii, which the fœtus is supposed to swallow during the latter months of intrauterine life, inasmuch as signs of irritation of the gastric mucosa are absent. Gastro-enterostomy or excision of the pylorus is suggested by way of treatment.—*British Medical Journal.*

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

JUNE, 1898.

Edited by FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician, Hospital for Scarlet Fever and Diphtheria; Consulting Physician, Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241–243 WEST 23D STREET, NEW YORK.

IMMUNITY FROM DIPHTHERIA CONFERRED BY ANTITOXIN.

There is, unquestionably, a doubt in the minds of many medical men as to the immunizing power of antitoxin. Literature is certainly vague upon the important questions as to how long a time safety can be assured and by what doses. For the purpose of answering these questions, Dr. F. Gordon Morrill, in the *Boston Medical and Surgical Journal*, reports the results obtained in the Children's Hospital of Boston. Eighteen hundred and eight patients received immunizing doses, about three thousand injections of antitoxin being given. The results of this experience, extending over three years, leads the author strongly to doubt the soundness of the conclusions reached by Kassowitz about two years ago. He is positive that we are able to confer immunity by promptly injecting exposed cases with an adequate dose of antitoxic serum.

The evidence presented certainly seems to bear out this belief, as the observations have been made with great care, and have been conscientiously recorded and reported. From this evidence Dr. Morrill concludes that he is perfectly justified in believing:

1. That immunity in any given case, of no matter how thorough exposure to diphtheria, may be conferred, for at least ten days, by the injection of a small dose (100-250 units) of serum, provided it is given twenty-four hours previous to actual infection.

2. That a large dose (250 units for a child of two years up to 500 units for one of eight years or over) will confer safety for three weeks—or, to be a little more conservative, for twenty days—under similar conditions.

3. That no harm will result from the treatment in a vast majority of cases of *sick* children, and probably in no case of a healthy child, provided the serum used is up to the present standard of purity.

In the eighteen hundred cases reported, so far as bad results from the injections are concerned, the only ones in which anything like dangerous symptoms appeared were those of a boy with a splenic leucocythemia, and another with nephritis. In the latter instance the antitoxin caused a distinct increase of the albuminuria and dropsy. In another case in which the same clinical symptoms were present and the urinary analysis corresponded very closely to that of the first, the injections produced no unpleasant effects. Of the three thousand injections given, with the above exceptions, aside from an occasional urticaria, far more rare now than formerly, and an insignificant and transitory albuminuria, nothing worth noting followed them. Very rarely was the antitoxin omitted or postponed, no matter how sick the patient may have been. In one instance of very severe cerebro-spinal meningitis, in which no injections were given, the child contracted a diphtheria which proved fatal.

In conclusion, the author expresses the opinion that a physician who fails to promptly immunize the members of a family, or close community in which diphtheria breaks out, neglects to do his duty by those whose safety lies in his hands.

BACTERIOLOGY AND PEDIATRICS.

The influence of bacteriology upon the practice of surgery has been so great as to be recognized by the most casual observer. Its influence upon the practice of medicine has been somewhat less evident. During the past three years, however, its influence upon practical medicine has been very largely felt. A recent number of the *British Medical Journal* calls attention to the fact that in no department of medicine has the recent development of the science of bacteriology had more important practical influence on successful practice than in pediatrics. It has not merely placed in our hands a reasoned basis of action to prevent the spread of infectious diseases which are so great a scourge to childhood, but it has shown us that the cause of death, in the very large majority of cases of acute infection, is not the severity of the disease itself, but the secondary infections. These secondary infections develop especially in the lungs and intestines, which the febrile condition renders unusually susceptible. It has shown that the prevalence of these infections can be diminished enormously by precautions which are within the reach of all. The problems which demand immediate consideration are the means to be used to check the enormous mortality from certain acute specific diseases, especially measles and whooping-cough, and the prevention of the spread of tuberculosis:

With regard to the diminution of the mortality among children from the acute specific disease the difficulty is greater, and the outlook not hopeful. Much has been done to diminish the mortality produced by scarlet fever, but with regard to measles and whooping-cough the early date at which the patient is infectious presents a difficulty apparently insurmountable by methods of the same kind as those which have been found more or less effectual against scarlet and typhoid fevers. There is at present no way which promises to enable us successfully to prevent the spread of these diseases among susceptible children congregated in schools. Nevertheless, bacteriology has advanced evidence which can hardly be gainsaid to prove that the complications, broncho-pneumonia in particular, to which these diseases are subject, may be largely or wholly prevented.

Bacteriology has also taught that the diarrhœas of children are due to microbic action. It teaches farther, therefore, how those diseases may be prevented, and has suggested much as to the rational course of treatment. When effective measures for the prevention of these various forms of infectious diseases have been perfected and enforced, the changes brought about by the study of pediatrics will be even more conspicuous than those already affected. The greatest advances in pediatrics, as in other departments of medicine, are undoubtedly to be obtained by practically applying the knowledge constantly being accumulated by the bacteriologist.

The leading article in a recent number of Clark Bell's *Medico-Legal Journal* is a diatribe on vaccination. It is written in the tone of a fretful old woman, and is marked by all the wildness of statement which characterizes most such articles. We are told that small-pox, instead of disappearing, is falling with increasing virulence upon all the vaccinating nations with each successive epidemic. This is indeed a surprise to the present generation of physicians, large numbers of whom have never seen a case of small-pox. Statistics are used in a manner to suggest the thought that the author may be attempting to demonstrate the proposition that nothing can be made to lie like figures. We find this interesting statement: "Unfortunately, most of the medical societies of New York are still so benighted and so bigoted that they will not permit the subject to be discussed at their meetings." This is a great and well-deserved compliment to the New York societies.

Bibliography.

Illustrated Skin Diseases, an Atlas and Text-Book with Special Reference to Modern Diagnosis and the Most Approved Methods of Treatment, issued in quarto-portfolios, each composed of four colored plates and twenty-four pages of text, profusely illustrated. By William S. Gottheil, M.D., *Professor of Skin and Venereal Diseases of the New York School of Clinical Medicine; formerly Lecturer on Dermatology in the New York Polyclinic; Consulting Dermatologist to the Orphan Asylum of the Sheltering Guardian Society; Dermatologist to the Lebanon Hospital, the North Western, and the West Side German Dispensaries.* New York: E. B. Treat & Co. 1898. Price per part, $1.00. Portfolios iv., v., vi.

We have already noticed in these pages the first three portfolios of this admirable work. The present portfolios are equal in every respect to the first. The plates throughout are admirable pieces of work, while the color photographs show, if possible, an improvement over the first series. A very important feature of these color photographs to the purchaser of the book is the fact that they are unvarying, the plates last printed being as good as the first. They do not vary either as do the ordinary photographs colored by the artist, for in them there enters the element of the artist's individuality and his changing moods.

The fourth portfolio is of decided interest to the pediatric worker, as it takes up the skin lesions of the acute infectious fevers. Although but few plates are introduced in illustration of these pages, the text is extremely good. The fifth and sixth portfolios are also of interest, in that they are devoted largely to eczema, erythema multiforme, impetigo contagiosa, and several minor conditions to which children are subject.

Treatment, as in the earlier portions of the work, is full, and on the whole very satisfactory. Numerous formulas are given, particularly for external application, each being numbered so that reference is easy, by which much valuable space is saved. The book fully maintains the standard set by the earlier portions, and easily takes place among the most important works on dermatology in the language.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting of April 14th, 1898.

J. Henry Fruitnight, M.D., Chairman.

JOINED TWINS—ATHORACOPAGUS MONSTER.

Dr. J. Barsky presented a specimen of this kind. The mother had been married about eighteen months when labor set in. On his arrival, he had found two children in the uterus. Various unsuccessful attempts were made to effect delivery, and after considerable manipulation only was the presence of the monster determined. Before the true diagnosis was made, it had been decided, after consultation, to sacrifice one child, and perform the embryotomy in order to allow of delivery. It so happened that the embryotomy gave an opportunity for the examination of the viscera, and disclosed the fact that there was apparently one very large liver and one stomach.

A METHOD OF MILK MODIFICATION BASED UPON THE DECIMAL SYSTEM.

Dr. Henry L. Coit read a paper on this subject. For complete paper and table see page 342.

Dr. Coit said that the milk laboratories had done a great deal for infant feeding in the large centers of population, but it was not within the reach of the masses at a distance, and was not available for many living near these laboratories. The modification of milk could be greatly simplified by the use of the decimal system, which possessed three important advantages, *viz.:* (1) Simplicity in the calculations; (2) flexibility in adjustments; and (3) accuracy in the results. This system makes it possible to employ home modification. In treating woman's milk with decimal solutions, it is never necessary to use more than 10 per cent. of solids, and hence it is quite possible to use a 10 per cent. standard solution. The percentage composition may be determined by multiplying the required total amount in cubic centimetres by the decimal desired. "Decimal cream," he said, "was a more constant factor for the fat than any other material with which he was acquainted. The combinations of decimal cream, decimal sugar solution and boiled water gave the desired modications. For the proteids, a decimal solution of egg-albumen might be used, or it might be calculated from skimmed milk. The decimal sugar solution is obtained by dissolving 100 grm. of lactose, maltose or cane-sugar in sufficient water to make one litre, or two ounces by weight in twenty ounces of water. As egg-albumen contains 20 per cent. of pure albumen, by diluting it with equal parts of water, a decimal solution is obtained, and the egg-albumen can be made soluble by the addition of pepsin. Skimmed milk contains 5 per cent. of lactose, but only a little over 1.5 per cent. of fat, so that very little fat is added, even when considerable skimmed milk is used. The proteid value of skimmed milk is increased when the fat is removed. Fifty samples taken on fifty consecutive days yielded approximately 180 c.c. of gravity cream after standing for fifteen hours. The advantages of gravity cream are: (1) Its uniform freshness; (2) uniform fat contents; (3) the emulsion of fat has received no mechanical agitation; and (4) the ease with which it is standardized by the addition of water. The use for this purpose of water containing much lime is contra-indicated. On the other hand, the potassium and sodium salts are deficient.

The following is an example of the manner of using this decimal system: In a case in which it is desired that each feeding shall amount to 6 ounces, and the percentage formula required is, 4 of fat, 6 of sugar and 1 of proteids, we arrive at the correct quantities for each feeding as follows: Feeding=6 oz., or in c.c.=6 x 30=180 c.c. To determine the amount of decimal cream No. 1 required to give the necessary 4 per cent. of fat, we multiply 180 by .4=72 c.c. We next find, on referring to the table, that with this percentage of milk-fat we introduce 1.00 sugar; hence, we must add only 5.00—in other words, we multiply 180 by .5=90 c.c., the required amount of decimal sugar solution. The necessary quantity of proteids having been added in this case in the first instance with the milk-fat, we now only have to add 18 c.c. of water to make up the desired total quantity, *i.e.*, 180 c.c.

Dr. Le Roy M. Yale said that it could not be denied that there was a real demand for a simple method of home modification, yet anything like complicated arithmetical formulæ immediately prevents many people from adopting the method. In many country places it is not possible to get milk from a herd, but only from a single cow. Under such circumstances he had been accustomed to look upon the strippings as a double-fatted milk, and had estimated the percentage accordingly. Exact modification was not as important as keeping within the digestive limits.

DR. W. P. NORTHRUP said that in practice one could not take a schedule age and write a formula to fit it. In obscure cases it had seemed to him better to adhere to the relative proportions of the fat and sugar, but he had found lately that he had secured good results from leaving the fats rather low, and working up the proteids. In a general way, experience had shown that if the infant regurgitated the food a good deal, it indicated that there was too much fat; if the stools were greenish, that there was too much sugar; if the stools were lumpy and curdy, that there was an excessive quantity of proteids. He had come to look upon the heating of the milk as an unfortunate necessity.

DR. HENRY DWIGHT CHAPIN said that the excessive manipulation required in making percentage milk of the laboratory seemed to him a serious drawback; the percentages might be correct, but it was known that when the fat is separated from the milk and again emulsified it has undergone certain undesirable changes. He was glad, for this reason, that Dr. Coit preferred gravity cream, in which the fat is in a finer emulsion. The very fact that the calculations made in the paper are based on using evening milk alone excluded its adoption in New York City, where the product delivered is a mixture of several milkings. He had long since abandoned sterilizing milk, because he had been impressed with the disadvantages of heating milk. The superheating of the milk affects particularly the cream, and, to a certain extent, also the casein, so that these ingredients are made less digestible. He thought if we could have clean milk delivered to us when only twelve hours old, we could accomplish more than by merely modifying the milk.

DR. L. EMMETT HOLT said that in his experience it had been unnecessary to get very close percentages. He had seen many cases fed on laboratory milk which had done badly. The great need of the present time was to appreciate the indications for varying the different ingredients, and until this was better understood there would be but little improvement in infant feeding. A very common mistake was to give too much fat; another was to begin with a low proteid percentage and keep it at this low point much too long. It would probably take at least another generation before the profession at large would get to think in percentages, and consequently, the refinements in milk modification are lost. Any one of these arithmetical methods is good, but requires considerable study before it can be used with ease. When we are dealing with a milk and a cream of known composition, it is not difficult to calculate a fairly satisfactory working formula. In order to make great variations in the percentages, according to Dr. Coit's method, it was unfortunate that three decimal creams were required. Personally, he did not believe that centrifugal cream had the disadvantages stated by Dr. Chapin.

Dr. W. L. Baner said that there are certain advantages in the old fluid measures over the metric system. The milk is sold according to the old and familiar system of measures, and these are the ones chiefly known to the laity. Again, as the percentage 4 is a very frequently recurring one, the old method offered a distinct advantage. In an eight-ounce mixture, allowing that the proteids in ordinary milk are 4, and the fat also 4, we find that to obtain a 1.5 proteid percentage, we must take three ounces of milk, or milk plus cream, in an eight-ounce mixture, to give that percentage. By adjusting the milk and the cream we could get the requisite fat percentage. What part should be cream in order to give the desired fat percentage? If 12 per cent. cream were used to obtain 4 per cent. fat, the total quantity of milk plus cream would be three ounces, and of this, two and one-half ounces would be 12 per cent. cream. If 20 per cent. cream were used, the amount necessary in an eight-ounce mixture would be half the difference between the fat and the proteid.

Dr. Coit, in closing the discussion, said that he personally objected to using much lime-water to neutralize the acidity of the milk; he preferred for this purpose the alkaline carbonates. It should be remembered that some samples of sugar of milk contained free lactic acid, and hence, the acidity of the milk may be increased by the addition of a solution of crude milk-sugar. The heating of milk seemed to him necessary; there were ten to twelve thousand bacteria to the cubic centimetre even in his "certified milk." The pasteurization of the milk seemed to increase, to some extent, the digestibility of the albuminoids. In separating the cream from the milk, it would be found best to use an ordinary siphon introduced to the bottom of the jar, so that the milk is removed and the cream allowed to settle to the bottom. He had found that it was much more accurate to use a decimal sugar solution than any form of measure for the sugar.

CHRONIC INTESTINAL INDIGESTION IN CHILDREN.

DR. S. HENRY DESSAU read a paper with this title. In connection with it he presented a little boy, ten years old, whom he had seen last January, because of nocturnal incontinence of urine and fæces. As the boy had been circumcised in infancy, preputial adhesions could not be blamed for the condition in this instance. The boy had a poor appetite, and was very restless at night. He was put upon proper diet, and treated for indigestion, with the result that the trouble for which his mother sought advice quickly disappeared.

Dr. Dessau said that the idea that the more food a child eats the better its health, seemed to pervade all classes of society, and with most disastrous results. Infants who regurgitate or vomit food do not seem to have intestinal indigestion because nature protects them in this way. If starchy food intended for children is not cooked sufficiently to allow of rupturing the starch granules, the starch will not be digested; instead, acetic acid will be formed, and will irritate the alimentary tract. The offspring of gouty patients are very liable to manifest a neurotic constitution, and in these the liability to intestinal indigestion is much greater than in others. In a limited number of cases the seat of the trouble might be localized. In young subjects, owing to certain histological peculiarities, the flow of mucus, as a result of irritation, is much greater than in adults. This profuse mucous secretion, so rich in mucin, furnishes an admirable soil for the development of micro-organisms, and of toxins. The large quantity of altered mucus also furnishes a convenient place for the lodgment of intestinal entozoa. Children who have suffered previously from chronic intestinal indigestion, and afterward become the victims of some acute infectious disease have their symptoms markedly aggravated. The invasion of the mucous membrane in children by the micro-organisms of the acute infectious diseases seems to result in a tendency to hypersecretion of mucus for a long time afterward. The childish victims of chronic intestinal indigestion sleep badly, are very restless at night, have deep, sighing respiration, and sometimes fainting spells during the day. Thirst, a craving for acids, and a general irritability of temper are also commonly observed. The tongue is moist and glossy, and the papillæ at the side are unusually distinct. Sometimes there are febrile attacks, associated with vomiting, and the passage of mucous stools. More commonly, there is constipation, and the stools are pasty and of a light color. A dry, hacking cough is sometimes present in advanced cases, and as it is associated with loss of flesh and a slight febrile movement, it may lead one to suspect pulmonary tuberculosis; but the rise of temperature is not so marked or so permanent as in the latter disease. This point in the diagnosis can be safely and positively decided by the use of tuberculin.

The reader of the paper went on to say that infants up to four months should not be given more than four ounces at a feeding, and should not be fed more than once every two hours during the day. When old enough to have a mixed diet, the starchy foods should be cooked not less than one hour in order to insure their proper digestion. With older children, milk should form the usual beverage instead of tea or coffee. Meat should be allowed at only one meal in the day. The drinking of pure water between meals should be encouraged. Where there is imperfect digestion of the starchy foods, diastase, taka-diastase, maltzyme or peptenzyme may be added with benefit. Coffee and tea are to be condemned; also fats and sugar except in the smallest amounts. A warm wet-pack, followed by a cold douche (60°) to the spinal column, is admirable for promoting oxidation of tissue, and elimination of waste matter. Rectal irrigation at 110° F. with the aid of Kemp's tube, is a most efficient means of relieving attacks of abdominal pain. Drugs should be used chiefly to relieve pain and flatulence, and for this purpose, calomel and bismuth are especially useful. The author's custom is to give calomel, 1-20 to 1-10 grain, in tablets, every two or three hours for from three to five days at a time, and repeat after a week or ten days. This usually produces a most happy effect. Where there is excessive flatulence or urticaria, bismuth, in some form, should be administered in doses of five grains, three times daily. After dentition, Dr. Dessau prefers the use of a tonic laxative, such as a mixture of cinchona and nux vomica, with senna or cascara sagrada. To this he adds spigelia, not because it is an excellent anthelmintic, but because in small doses it is a most reliable remedy for correcting that condition of the bowel which is favorable for the breeding of intestinal worms. It arrests the immoderate secretion of mucus, and diminishes flatulence. The following formula was recommended:

Fluid extract of spigelia, - - - -	dr. ij.
Fluid extract of senna, (or cascara, dr. j.) -	dr. ij.
Tinct. of nux vomica, - - - -	dr. j.
Comp. tinct. of cinchona, - - - -	oz. ss.
Comp. syrup of sarsaparilla *ad.*, - - -	oz. ij.

Sig. One drachm, three times a day.

When there is anæmia present, and the tongue is not much furred, it is well to alternate the use of the spigelia with Elixir of the manganate of iron, an elegant and palatable ferruginous preparation. These remedies should be continued, in alternating courses of three weeks, for about three months.

Fracture of the Neck of the Femur in Childhood.—Whitman (*Annuls of Surgery*) reports ten cases of fracture of the neck of the femur in children between two and a half and eight years of age, and presents two skiagraphs showing the consequent deformity of the bone at the seat of the injury. In the course of this paper, the author deals with certain practical difficulties in connection with this injury, especially its immediate diagnosis, and its differential diagnosis from hip disease during the stage of recovery. It is held that the traditional age limit for fracture of the neck of the femur does not exist, and that this injury not only does occur in childhood, but is probably not an uncommon accident which may be recognized, or may at a later period be mistaken for and treated the diagnosis of hip disease. In opposition to the accepted teaching that the symptoms here regarded as those of fracture are due to separation of the epiphysis of the head of the femur, the author holds that it would be rather extreme violence followed by non-union of the fragments or subsequent disability that would favor the diagnosis of the latter form of injury. The less the violence and the less the immediate disability, the greater would be the probability of fracture when signs of fracture are present, because a bone is more likely to break in its weakest than in its strongest part, and because rapid union and almost normal functional capacity associated, as was observed in all the author's cases, with upward displacement of the trochanter, prove that the solution of continuity could not have involved the articulating surface of the femur.—*British Medical Journal.*

Current Literature.

HYGIENE AND THERAPEUTICS.

Moore, Dixon L.: Sporadic Cretinism. (*Columbus Medical Journal.* 1897. Vol. xviii., No. 7.)

The whole group of cases which depend upon diminution or absence of functional activity of the thyroid gland may be best classified into:

I. Sporadic and epidemic cretinism.
II. Myxœdema.
III. Cachexia strumapriva.

The second of this classification, "myxœdema," was first defined in 1873 by Sir William Gull as "a cretinoid state supervening in adult life in women."

The third, "cachexia strumapriva," was established in 1883 by Kocher, who found that of 32 patients from whom the thyroid had been entirely removed, in 26 a condition was later established identical with myxedema; in the remaining 6 cases the goitre returned—showing conclusively that the original operation had not been complete and that doubtless some small part of the gland had not been extirpated.

The term "cretinism," first employed by Plater in the year 1500 to designate all varieties of the present classification, is now used to describe only those cases occurring in childhood.

"Who is this melancholy creature which bears the human form in its lowest and most repulsive expression? I see a head of unusual form and size, a squat and bloated figure with a stupid look, with bleared, hollow and heavy eyes, with thick projecting eyelids and a flat nose. His face is of a leaden hue, his skin is dirty, flabby, covered with tetters and his thick tongue hangs down over his moist, livid lips. His mouth, always open and full of saliva, shows teeth which are going to decay. His chest is narrow, his back curved, his breath asthmatic. I see, indeed, arms and legs, but the limbs are short, mis-shapen, lean, stiff, without power and without utility. The knees are thick and inclined inward, the feet flat. The large head droops listlessly upon the breast, the belly resembles a bag, and its integuments are so loose that they cannot contain the intestines in its cavity. This loathsome idiot hears not, speaks not, and only now and then utters a hoarse, wild, inarticulate sound. Notwithstanding his greediness he is scarcely able to support life. One passion alone seems to arouse him from his usual insensibility; this is the sexual instinct in its rudest brutality. At first sight we should be inclined to take this wretched being for a gigantic polypus, something in imitation of a man, for it scarcely moves; it creeps with the painful heaviness of the sloth. And yet it is the monarch of the earth, but dethroned and degraded—it is a cretin."

Such is the vivid description of Berchtold-Beaupre (*Dissertation sur les Cretins*). It is a composite picture of many cases. Here, as in every other disease, there are degrees and gradations of severity and the words quoted above do not probably apply to any individual case.

Excluding myxedema proper and cachexia strumapriva, the best classification of cretinism is that made by the commission appointed by the government of Sardinia to investigate the disease:

I. Cretins manifesting only vegetative functions, and deprived entirely of reproductive and intellectual faculties, including the power of speech.

II. Semi-cretins possessing the power of reproduction and some faculty of speech; intellectual faculties limited to corporeal wants.

III. "Cretinous," having intellectual faculties superior to the former and able in some degree to engage in trade and other employments.

The pathology of the disease has its basis primarily in the thyroid gland. What the ultimate cause is for the glandular changes is unknown. Delafield and Prudden say: "The most marked and constant lesion in this disease is an atrophic condition of the thyroid gland. The parenchyma is more or less completely replaced by the fibrillar connective tissue and by new-formed reticular tissue resembling the lymphatic tissue of the lymph nodes. The fat tissues may be atrophic and the subcutaneous tissue has been shown in some, but not in all, cases to contain an unusual amount of mucin. In certain patients the fibres of the upper or external part of the corium are crowded apart by fluid."

Two-thirds of endemic cases are accompanied by goitre. Sporadic cases as a rule have no goitre. The function of the gland, whatever it may be, is held in abeyance, whether there is an atrophy of its substance or whether there is a definite goitre. Either the atrophy or the development of goitre interferes with the function of the gland and inhibits the production of some material necessary to the normal metabolism of the economy. This assumption is verified by experience in treatment. In cases of myxedema treated with thyroid extract, in order to replace the "somewhat" that has failed to be produced by the gland, we have to supply not only the ordinary amount necessary in health, but an increased quality to combat the changes already taken place in the body due to its absence. This necessitates large dosage at first, which is often followed by marked improvement, and not seldom by complete attainment to a normal mental and physical state. If, however, administration of thyroid extract is discontinued, the original condition will in all probability quickly return. Glandular degeneration and connective tissue formation are likely to remain uninfluenced and preclude the further functionating of the gland, so that in all cases treatment in reduced doses must be continued as long as the patient lives.

Cretinism usually begins during the first four or five years of life. A few cases of intra uterine origin have been reported. It is twice as frequent in females as in males, while in myxedema the proportion is seven to one. Direct heredity does not appear to play any part in its causation. It occurs mainly in mountainous districts of Europe and has, in fact, been called the "Alpine disease." Altitude, climate, soil, drinking water, etc., have all been attributed as causes, but while the weight of opinion is that water contains the ultimate cause, no entirely satisfactory theory has yet been substantiated.

Contrary to the condition existing a few years ago, in fact preceding 1888, the prognosis in cases of cretinism, if seen before the age of puberty, is usually favorable. Even cases seen as late as 15 to 18 years of age have shown remarkable improvement and have taken up again their mental and physical development where it had stopped years before. Previous to the introduction of thyroid feeding a certain amount of improvement, especially in warm weather, was noticed under general tonic treatment and the use of diaphoretics. Sooner or later, however, such cases died usually before reaching 35 years of age. Now we are justified in promising that if the thyroid treatment be faithfully followed, a remarkable and definite gain can be made. Improvement in the physical condition usually precedes that of the mental condition. At present the best method of administering the thyroid is by the mouth. It may be given in the form of the raw lobe of either the sheep, pig, or cow, the glycerine extract of the same, the dessicated powder or the dried powder compressed with an excipient in the form of tablets. The first case of myxedema treated in this manner was in 1892 (Howitz, of Copenhagen).

Thyroid grafting has had too many failures to be popular. Since 1883, when Kocher first grafted a piece of healthy thyroid gland into the abdominal cavity of a patient, experiments along the same line have been numerous. The immediate results of such operations have been good, especially when preceded for a number of months by administration of the extract by the mouth in order that the more active symptoms of the disease may have subsided and that the graft shall have had more normal tissue in which to be implanted. The temporary improvement in these cases of grafting is due to the absorption of the glandular juices. Rarely, however, does the engrafted gland become sufficiently vascularized to functionate.

Mercier: The Choice of Fluid for Enteroclysis in the Newly-born. (*Thèse de Paris.* 1897.)

Enteroclysis constitutes a rational method of treating intestinal disturbances in infants, and has also proved an efficacious one. In the case of newly-born babies, half a litre of fluid should be injected at a time. Boiled water, borated water, or physiological salt solution may be used. Should the stools be very fetid, a saturated solution of naphthol is valuable. Finally, if the large intestine is in an inflammatory condition, especially the lower portion, enteroclysis with starch water is indicated.

Siredey: The Treatment of Articular Rheumatism by Local Applications of Salicylate of Methyl. (*Journal de Clin. et de Thér. Inf.* Vol. v., No. 33.)

The remedy is poured, drop by drop, upon the affected part, which has previously been washed and laid upon a rubber sheet. This is wrapped about the limb, and covered with a flannel or gauze bandage. The dose is 50 to 120 drops, and its absorption is proved by chemical analysis of the urine within half an hour after the applications. The treatment may be repeated twice within twenty-four hours if the pain is very severe. No ill effects have ever been noted upon the skin, and disagreeable general symptoms are extremely rare.

It is in sub-acute and chronic cases of rheumatism which do not yield to salicylate of sodium that the local method is particularly applicable, and in these it produces rapid and lasting good results. It is also very easily done. In the acute cases, where several joints are involved at the same time, the doses necessary for the several applications are very large, and the handling of the limbs is very painful. For these reasons the method is scarcely to be advised in acute cases, unless the salicylic preparations cannot be taken internally. Cardiac complications in no way contra-indicate the local use of methyl salicylate.

Editorial: The Relief of Ocular Pain. (*Atlantic Medical Weekly*. 1897. No. 11.)

In a practical review of the available measures for relief of ocular pain, including hot water fomentations, ice cold compresses, leeching, counter-irritation, anesthetics and analgesics, the writer says that of the coal-tar derivatives, lactophenin is probably the safest and is quite as efficient as any. In ten to fifteen grain doses the pain of an iritis is sometimes relieved for hours, long enough to allow the patient to get needed sleep. In glaucoma secondary to a dislocated lens, where all the effect of an iridectomy had been produced by the injury itself, this drug was the only one, save morphia, which gave relief. The pain of herpes zoster ophthalmicus, which is so persistent and severe, was also relieved in great measure by this drug; in one case where morphia failed to produce any alleviation of the suffering.

SURGERY.

Cotton, John C.: Renal Sarcoma in an Infant Nine Months Old: Successful Nephrectomy. (*Medical and Surgical Reporter*. Vol. lxxvii., No. 20.)

In 1896 the author gave the history of a successful nephrectomy for sarcoma, performed on an infant nine months old. Promise was then given that should recurrence of the disease take place a further report of the case would be made.

Ten days after the nephrectomy, which was performed January 3, 1896, an exudation made its appearance beneath the line of incision, which in a short time increased to the size of a lemon. It caused some apprehension that malignancy might develop, as it was very hard, but soon signs of suppuration appeared and pus finally was discharged freely through the abdominal incision. This continued for about two months, when the induration disappeared entirely and convalescence was established.

About this time a knuckle of intestine appeared in the pus tract. Hernia is not an unusual occurrence in transperitoneal incisions, even without an opening through the abdominal parieties caused by a chronic discharge. A suitable pad was applied to retain it, and shortly afterward the patient was taken to the country and removed from observation. On account of the discomfort the hernial appliance produced during the heated term it was removed, and when next seen the hernia was as large as the child's head.

An operation for the radical cure was deferred in the expectation of recurrence of the disease superseding its necessity, until after the operation. Finally to give relief to the inconvenience caused by the large hernia it was decided that an operation was demanded by the circumstances and justifiable. On December 9, 1896, the operation was performed without incident.

The case proceeded well until the expiration of the second week, when a solid tumor was discovered deep in the abdominal cavity. This presaged the trouble that soon made its appearance. The tumor increased in size rapidly, without any indication of suppuration which characterized the exudate in the former operation. But little pain was experienced by the child through the subsequent progress of the case. As the tumor increased in size, emaciation progressed until his death, June 22, 1897. The child had survived the first operation nearly one and a half years, and the second over six months.

A *post-mortem* examination was made on the day of death. The stomach, liver, remaining kidney and lungs were normal. There was some infiltration of the pleural cavity and peritoneal, also of the cellular tissue of the lower extremities. Three solid tumors were found, the weight of which were respectively as follows: 14, 3¼ and 2¼ lbs., aggregating 19½ lbs. These tumors originated in the lumbar glands to which they were firmly adherent. The abdomen measured 43¼ inches in circumference. Age at death, two years, nine months.

Dubar: Heteroplastic Bone Grafts. (*Journal de Clin, et de Thérap. Infantiles.* Vol. v., No. 50.)

On account of tuberculous osteo-arthritis involving the right wrist, in a little girl of ten years, the joint was laid open, the diseased portions removed, and five pieces of bone from the femur of a young dog (killed when the operation began) were inserted in place of the five wrist bones which had been taken out. The wound healed well, there was no pain, and in three months the right hand could be used to hold light objects.

Six and a half years later the joint was straight, firm, movable, and very useful.

Radiographs were taken of both wrists in order to determine what had become of the pieces of grafted dog's bone. It was plain from these that the bone grafts had not been absorbed, but remained surrounded by a mass of new formed fibrous tissue which united them to the débris of the carpal bones; they had also increased in size. Whether the original pieces of transplanted dog's bone remained as such, and even increased in volume, or whether they were absorbed after acting merely as a stimulus to the new formation of bony tissue in the child's wrist, cannot be satisfactorily decided at present.

Malherbe: Case of Death Following Forced Reduction in Pott's Disease. (*Gazette Médical.* Vol. lxviii., No. 28.)

A boy of twelve, who had had Pott's Disease for eight years, was treated by Callot's method of forced extension. The kyphos was in the dorso-lumbar region, and grew smaller, but did not disappear with the treatment until pressure was made. After the operation epistaxis and difficult respiration were noticed at times, but on the eleventh day the dyspnœa suddenly became very much augmented and death occurred within a few hours. At the autopsy a fibrinous pleurisy with hemorrhagic fluid in the right pleural sac was found, together with a large amount of softening of the fragments of the diseased vertebrae, and a rupture in the anterior wall of the tuberculous abscess.

Charon and Delcourt: Appendicitis Complicated by Perforation of the Coccum; Cure after Laparotomy. (*Journ. de Clin. et de Thérap. Infantiles.* Vol. v., No. 35.)

During the second attack of appendicitis in a boy eleven years old, the symptoms of peritonitis developed. Laparotomy was performed and revealed a large, fetid, purulent exudate in the peritoneal cavity with a round perforation in the anterior wall of the coccum. This was closed by suturing, the inflamed appendix was removed, the intestines, which were covered with an inflammatory exuade, were carefully cleansed and the abdominal wound closed, except where a drain was inserted. The recovery was complete and rapid, so that, in commenting upon the case, the authors express their surprise at the happy termination of so very unfavorable a condition as presented itself at this operation.

Faivre: Application of the Roentgen Rays in the Case of a Child Who had Swallowed a Pin. (*Journ. de Clin. et de Thérap. Infantiles.* Vol. v., No. 32.)

A little boy of two and a half swallowed a pointed brass pin. Emetics and purgatives failed to cause its rejection, and when seen after five weeks, the child held the head rigidly flexed toward the left shoulder, any attempt to relieve the torticollis causing agonizing pain. As no foreign body could be located by palpation or examination by the mouth, the radiograph was resorted to, under chloroform anæsthesia. Exposure lasted one hour, the neck being forcibly extended. The pin was located behind the posterior faucial pillar, on a level with the pharyngeal roof. On the following morning the child was anæsthetized once more and the pin readily felt and removed.

No erythema resulted from the use of the rays, nor did the heart suffer in any way from the prolonged exposure in the vicinity of the great vessels.

Talotti: Cysticercus of the Skin in a Ten-Year-Old Girl. (*Jahrbuch für Kinderheilkunde.* B. xlv., H. ii., iii.)

A tumor, the size of a hazel nut, was noticed, situated to the right of the naval, in a ten-year-old girl. The growth was easily moved and appeared to be between the skin and the abdominal muscles. It was slightly sensitive upon pressure. The tumor was removed, and upon examination proved to be a cysticercus cellulasæ.

Roosing: Tubercular Arthritis and Osteitis in Early Childhood. (*Jahrbuch für Kinderheilkunde.* B. xlv., H. ii., iii.)

Seven cases are reported, the natures of which, while typical, are decidedly unusual. The symptoms of pain, fever and swelling of the joints developed rapidly, in children previously healthy.

In all of the cases, the bacteriological examination showed the process to be due to the tubercle bacillus. Among the seven patients, ten joints were involved as follows: Twice the shoulder, once the hip, five times the knee, and the ankle and sterno-clavicular each once.

A further peculiarity shown was that when the pus was removed by simple incision the recovery was as rapid as the onset without impairment of the joint involved. The author compares the results of the incision with those obtained in tubercular peritonitis.

Heath, A. Douglas: Multiple Cutaneous Gangrene of the Scalp in a Cachectic Child. (*British Medical Journal.* 1897. No. 1905.)

The cause of this peculiar condition was very obscure. The child had suffered from no serious illness prior to the appearance of the gangrene. The gangrene when once started ran its course to a fatal termination in four weeks, but the disease was much more rapid in its spread during the last seven days of the patient's life than in the previous three weeks. The gangrenous patches were entirely confined to the hairy scalp, which in the intervening areas appeared to be perfectly healthy, and no skin lesions of any kind were present on the rest of the body. No discharge from the nose or ears could be seen, nor could any other source be found from which infection of the scalp might have taken place. There was no previous history of varicella either in the patient or in his brothers and sisters, and all the children in the family were examined for that disease with a negative result. No signs of syphilis were present in the patient nor the other children, and the examination of the father and mother also revealed no evidence of that disease.

The following points are perhaps the most noteworthy in the case just described. First, varicella did not precede the onset of the gangrene, even remotely, as has been observed in the majority of cases of gangrenous dermatitis occurring in infants and young children.

Secondly, the child had been vaccinated when under three months of age, and was just two years old when attacked with the gangrene, so that vaccinia obviously cannot have had a causal relation to it.

Thirdly, the limitation of the gangrenous areas to the scalp is an uncommon feature in the cases not following either varicella or vaccinia, the lower half of the body being more frequently attacked.

Fourthly, no formation of any scab was visible on any of the gangrenous patches, although these were, in the earlier lesions, of considerable size, and in two instances had existed for three weeks, the necrosed skin remaining moist throughout, and this fact is all the more noteworthy as in the large majority of these cases of gangrenous dermatitis a scab resulting from the drying of the central portion of the gangrenous area is formed under which ulceration still goes on in rupia-like fashion. It may be, however, that this scabbing was only prevented by an unusual amount of moisture keeping the dead skin continually saturated, and the more usual appearances of such lesions were absent from that circumstance alone.

The mode of origin in this case was more like that seen in the formation of the multiple subcutaneous abscesses not infrequently met with in ill-nourished children, in which the cutis over the abscess appears at first to be very little affected whilst the disease progresses in the subcutaneous fat, and the surface of the skin over quite large areas may look pale, or at the most show only a little desquamation and slight reddening. When this process had gone on for a certain time, and a slightly raised swelling covering an area as large as a sixpence or shilling had been produced, a deepening in color, slow in the earlier, but rapid in the later lesions, took place, and the subsequent rapidity in the development of the gangrene in the latter seemed due to an increased virulence of the disease, and not to any accidental concomitant, like hemorrhage into their cavities.

Finally, the patient showed no signs of ordinary pyæmia, nor of ulcerative endocarditis; there were no rigors, the joints were not swollen, the skin remained dry, and the temperature was never higher than 102.4° F. It would also be difficult to imagine multiple emboli from these causes producing eight distinct lesions of the scalp without the rest of the skin of the body showing any signs of similar embolic infection.

MEDICINE.

Fischer, Louis, and Poole, Herman: Results Obtained by the Use of Gaertner's Mother Milk in Children. (*The Medical Record.* 1897. Vol. lii., No. 24.)

Prof. Gaertner, in the preparation of his food, has aimed to overcome what has been the great difficulty in infant feeding—namely, to reduce the excess of casein by a scientific process without the addition of chemicals.

To achieve this result he employs the Pfanhauser centrifuge, which makes four thousand or eight thousand revolutions per minute. The apparatus consists essentially of a drum of steel, which revolves on its axis. This drum is filled with equal parts of fresh cow's milk and sterilized water. The mixture contains approximately the same amount of casein as human milk, for cow's milk undiluted contains about twice as much casein as human milk. The mixture is next poured into the centrifuge and the speed of the drum is carefully regulated, so as to separate the mixture into (1) a creamy (fatty) milk, and (2) a skimmed milk.

The analysis of each of these portions shows that the creamy milk has the same quantity of fat as it found in human milk, while about two per cent. of the casein is contained in the skim milk, and the remainder, about 1.7 per cent., remains in the creamy milk. The chemical composition of fat milk is as follows: Proteid, 1.76; fat, 3 to 3.5; sugar, 2.5; ash, 0.35.

If three or four grams of milk sugar be added to every one hundred cubic centimetres of fat milk, the percentage of sugar is brought up to the level of sugar in human milk.

To test the availability of this food the author made observations on five patients, the result of which are reported in this paper. He found that the small amount of proteid matter contained in the milk appeared to be easily assimilated. The first case thrived upon the milk after other forms of milk had been unsuccessfully tried. Twenty-six ounces were gained in fifteen days of hot weather during early July.

The second case suffering from summer complaint early in July, made rapid progress, and while it could not digest a dilution of one-third milk and two-thirds barley water without passing six or eight stools a day, fared very well on the Gaertner milk.

The third case was under observation from July 21st until August 9th, and, although progressing favorably, contracted measles and died.

The fourth case, an emaciated child had been receiving breast milk which did not satisfy it. The mother insisted on nursing it, and thus it received mixed feeding, alternating the breast milk with the Gaertner milk. The child received from two to three cans of milk per day, without showing evidences of colic, and without having gastric or enteric disturbances.

The fifth case was a prematurely born child with congenital syphilis. When first seen there were thick, cheesy stools, which, after the gastro-intestinal tract had been cleaned and feeding changed, showed an entire cessation of the colicky symptoms. When commencing this treatment, all milk was stopped, and the child was fed on barley water and rice water for three days, after which Gaertner milk was given. Although it was syphilitic, and a premature child, it increased three pounds and seven ounces from August 11th until September 25th.

In the analysis of the milk made by Mr. Poole, it was found to contain the following: Fat, 3.05 per cent.; casein, 2.09 per cent.; milk sugar, 6 per cent. Specific gravity, 1.0275. Reaction, faintly alkaline.

When cold part of the fat separates out, forming a layer on the top of the liquid. On being warmed and thoroughly shaken, this is completely emulsified and distributed through the fluid.

Each can contained ⅓ of a litre or 20.34 cubic inches, and weighing nearly 9½ ounces. Of this there was: Fat, 0.289 oz.; casein, 0.198 oz.; milk sugar, 0.569 oz.; total, 1.056 oz.

Each child consumed from three to four cans of the milk per day and hence used: 0.867 to 1.156 oz. of fat; 0.594 to 0.792 oz. of casein; 1.707 to 2.276 oz. of milk sugar.

The milk was perfectly sterilized, a can remaining open for five days without thickening or showing acidity.

Chemical examination of the fæces was made with a view of obtaining, as nearly as possible, the percentage of undigested fat and casein.

The results, which were very favorable, are shown in a number of tables containing all the data.

Thomson, John: A Case of Gall Stones in a New-Born Infant, with Remarks on the Pathology of the Disease. (*Edinburgh Hospital Reports.* 1898.)

At birth the baby was fat and well-developed. His urine from the first was brown, like coffee. He passed no meconium of the usual color, but yellow matter like ochre. After the second day his breathing improved, but his urine continued as before. At night he always seemed pained in the belly, although he was tolerably comfortable during the day. Two or three days after birth the jaundice was noticed, and this continued till death. During the first week the motions were yellow, and four or five in number daily. During the second they were less frequent, but of the same color. During most of the last week they were still yellow, but constipated, and seemed to cause pain when passed. During the last two days of life they were slimy and green. At no time were they white or clay-colored. The child often retched, but never vomited, until just before death. He was on the breast, but was also given corn-flour. He grew steadily weaker, and died when twenty days old.

Post-mortem.—Only a partial *post-mortem* examination was allowed: The bowel seemed normal, and its contents were bile-stained. The liver also had a normal appearance. Nothing abnormal was noticed about the bile ducts, and no calculi were felt in them. The liver tissue appeared fairly normal to the naked eye, but, on microscopic examination, there was found commencing cirrhosis, with some fatty infiltration. The gall bladder seemed quite normal, but was not examined microscopically.

The concretions which it contained consisted of one large one, one smaller one, and a number of little fragments, evidently broken off from the others. They were of a dark brown, rusty color, and taken together weighed, when thoroughly dry, 30 mgrms. The largest one alone weighed 25 mgrms, and was 6 mm. in length.

Chemical examination showed the stones to be composed chiefly on inspissated mucin and bile pigment.

Instances of gall stones in newly-born infants are exceedingly uncommon, and they seem worthy of separate consideration, because they not only differ clinically in some important respects, but probably also have a somewhat different pathology from those in older children. The entire number of these cases is very small, and the facts about them so very few that they may all be stated in a few lines.

CASE I.—Valleix has seen one case in which life was destroyed at or about the eighth month of intra-uterine life by jaundice, caused by the impaction of a gall stone in the common gall duct.

CASE II.—A male infant, æt. 12 days, was brought on 5th July to M. Parrot with extreme jaundice and athrepsia. On 16th July he had hæmaturia, and he died on 22d July.

Post-mortem.—Liver bronzed and softened. Gall bladder empty, and reduced to a small canal. Gall stones found obliterating the ductus choledochus and cystic duct. There had been hæmorrhage into the psoas muscle.

CASES III. and IV.—Portal reports the cases of two little children, who died shortly after birth, and who had very intense jaundice. The liver was found infiltrated with blood, and the bile ducts were full of gall stones, which might well have obstructed the passage of bile, and caused jaundice.

CASE V.—Lieutaud reports the case of a child born intensely jaundiced. He cried continually, and screamed loudly in spite of all treatment. He died on the twenty-fifth day of life.

Post-mortem.—All the viscera were healthy, except the liver, which was somewhat large. It was bluish-red in color, and very soft in consistence. The bile ducts and bladder contained several calculi. One of these was situated in the ductus choledochus, at its opening into the duodenum, and was the size of an ordinary pea.

CASE VI.—Bouisson found three calculi in thick black bile in the gall bladder of a new-born child. There was commencing obliteration of the ductus choledochus. The child was deeply jaundiced.

In all these infants jaundice was present at, or immediately after birth, and continued till death, which in every case took place within a month. From the early onset of the jaundice, we may gather that the conditions occasioning the gall stones, if not the gall stones themselves, must have arisen *in utero;* while the fact of all the cases ending so rapidly in death certainly seems to indicate that the gall stones were not the only abnormality present, and that the other lesion was a very serious one indeed. What this other disease can have been we have not sufficient evidence to prove, but such few facts as we do possess, all suggest the probable presence in these cases of the serious intra-uterine disease which gives rise to congenital narrowing and obliteration of the bile ducts. The reasons for this opinion may be briefly stated:—

1. There is the fact that the great majority of cases of chronic fatal infantile jaundice, occurring in temperate climates, in which the discoloration commences within a few days of birth, are of this nature.

2. In the only two of the cases given above in which any description is given of the ducts themselves, there were apparently abnormalities, such as we find in that disease. Thus, in Cuffer's case, the gall bladder was shrunken into a small canal; and in Bouisson's there was commencing obliteration of the common duct.

3. The symptoms mentioned were all such as would be expected with congenital narrowing.

4. What little is known of the pathology of cases of so-called congenital obliteration of the bile ducts, renders it very probable that the conditions present during its early stages would be favorable to the formation of calculi. For example, there are reasons for believing that the narrowing of the ducts in these cases is secondary to some intra-uterine change in the composition and conditions of the bile, which converts it into a source of severe local irritation. Therefore the presence of a lesion of the mucous membrane of the gall bladder, such as is known to predispose to calculus formation, is not improbable. Again, the passage of bile in these cases is often quite obstructed long before there is any actual obliteration of the lumen of the ducts. Consequently there must be very great and long-continued retardation of its flow while the disease is progressing, and this is always recognized as an important predisposing cause of gall stones. Lastly, in many of the *post-mortem* records published, it is stated that the bile contained in the gall bladder was especially thick in consistence; and in one very carefully recorded case, which seems to have been of this nature, the common duct was found blocked by "an indurated, cord-like plug of inspissated bile."

While, then, our present knowledge scarcely justifies any conclusion on the matter, it seems probable that further experience will show that gall stones in new-born infants are generally, if not always, a complication of the congenital disease which results in narrowing and obliteration of the bile ducts.

Békéss, Aladar: Epidemic Influenza. (*Wiener Med. Presse.* 1898.)

Influenza is an acute infectious disease, which remains latent in unknown regions for many years, only to make its appearance epidemically, and at times endemically. The evidences of these epidemics can be traced back to the 12th century. They do not disappear as quickly as they come, and only after numerous smaller or larger outbursts do they pass away entirely. Even now we hear of characteristic clinically observed cases. Climate and season seem to bear but little weight on the spread of this disease, although it has been noticed that the epidemics seldom occur in summer.

Since 1890, the author has used almost exclusively salipyrin, not only in influenza, but also in ordinary catarrhal affections, rheumatism, and neuralgia. He prescribes as an evening dose 15 grains, for adults; mornings, generally one half that amount. For children one-tenth to one-half the above-mentioned doses are given, according to age. He has seen no unpleasant after-effects from its use, and has never been compelled to resort to larger doses. With this remedy he has obtained the best results. He has noticed that salipyrin must be continued for some time in order to achieve a good result. He prescribes 10 grains at night for three to five days after the fever has disappeared. Even after the fever has fallen to the normal the patient should be confined to his room for a number of days.

Rochet and Jourdanet: Incontinence of Urine in Children. (*Gazette des Hôpitaux, 1897: Therapeutic Gazette.* Vol. xxi., No. 7.)

The difficulty in overcoming certain cases of incontinence in children is recalled by a somewhat elaborate, well-systematized paper by the authors who classify cases of incontinence in children under two general headings:

1. Those in which incontinence is the expression of a distinct local lesion, or those in which it develops in the course of a general disease, of which it is an expression of minor importance. Such forms of the disease are called symptomatic. The appropriate treatment is that directed to the general condition, as post-typhoidal adynamia, or to the local exciting cause, as a rectal polyp or balano-posthitis.

2. Those in which incontinence is the only symptom. Such cases are called essential, though in reality they more correctly would be named neurotic. The term "incontinence" is misleading, since this implies a constant dribbling; whereas in children it nearly always assumes the form of involuntary urination.

The essential incontinence of children is always associated with a neurosis, usually hereditary; indeed Guyon considers wetting the bed a pathognomonic sign of this condition. It may be, perchance, the only sign, though it is often associated with other manifestations even more characteristic.

The condition itself may be directly brought about by undue contractility of an irritable detrusor muscle, or by hyperesthesia of the mucous membrane of the prostatic urethra, or by thoughts or ideas which produce frequent urination by day and incontinence by night.

In the class of cases in which the neurosis is manifested in the form of spasm of the vesical sphincter, this may result in either partial retention, which necessarily favors wetting of the bed, or of complete retention, which would cause a true diurnal and nocturnal dribbling (retention with overflow). Very exceptionally the neurosis may be expressed in the form of a paresis of the sphincters; this also would give rise to constant dribbling. In examining patients it is important to bear in mind the possibility of retention with overflow. This condition would be detected at once by catheterization, and if the injected fluid were returned through the catheter with slight force the surgeon would at once suspect paresis in the detrusor muscles. The introduction of a catheter will also detect atony or hyperesthesia and spasm of the ureteral sphincters.

In case urethral exploration remains negative abnormal sensibility to distention would be suggested as a possibile cause of incontinence. Injection into the bladder would at once settle this question, since the viscus if hypersensitive to tention would reject the liquid when but a small amount had been driven in. In case exploration remains negative the incontinence may be classed as psychic.

The treatment should, of course, be primarily that applicable to neuropathies. Belladonna is particularly indicated in those cases which are probably due to an over-excitability of the detrusor muscles of the bladder. No one has been able to suggest a better means of administration than that first proposed by Trousseau. The initial dose is one-sixth of a grain of the extract given in the evening at bedtime. After several days this dose is doubled, the patient finally taking as much as from one-half to one grain, the surgeon carefully watching for toxic symptoms and stopping the medicine very gradually if the desired effects are obtained. Other medications possibly serviceable in the same condition are bromides, chloral, camphor, lupulin, lactucarium, and opium.

When the cause of incontinence is immediately traceable to hyperesthetic condition of the mucous membrane of the posterior urethra, general sedatives are still serviceable. Local treatment is, however, especially indicated, instillations of cocaine or of silver nitrate and the repeated passage of a cold full-sized sound being particularly useful.

The very rare cases of incontinence due to anesthesia of the urethro-vesical region, practically always due to lesions of the spinal cord, are said to be benefited by cauterization of the posterior urethra. Trousseau's advice for atony of the vesical sphincters is that strychia should be given in fairly full doses morning and evening, continuing the medicine for two days and then allowing two days of rest. The quantity of the drug is gradually increased. Guyon in his class of cases has been particularly successful with electricity. An electrode is introduced, insulated excepting at the end. The other electrode is placed either upon the pubis or the lumbar spine, and the faradic current with slow interruptions is employed. Each treatment should last about five minutes; this directly exercises the weakened muscles and restores their tonicity. To control the psychic influences, especially the dream of micturating, various means are serviceable. Thus, the slumber may be rendered less profound by means of tea or coffee. These agents are, however, not to be commended in the treatment of neuropaths. Another method is to wake children regularly during the night. This method gradually accustoms the bladder to regular evacuations. The number of wakings should be proportionate to the quantity of urine secreted and to the frequency of micturition during the day. Punishment is successful in some cases, since it makes a powerful impression upon the brain. Suggestion has been utilized in other ways; thus painful subcutaneous injections have been employed, or operations have been threatened. Finally hypnotic suggestion has been used, Liebeault having claimed by this to have cured cases. The first step in this treatment is to procure hypnotic sleep. It is then suggested that the child should rise at certain hours to urinate; gradually the number of risings by night is diminished until finally they are abolished entirely, the child being forbidden to urinate until it wakes in the morning.

The pure psycopathic incontinence dependent upon dreaming of micturition is probably the most troublesome of all to cure. Psychic treatment is alone efficient. The cure is usually spontaneous in these patients and accomplished about the time of puberty, when amorous dreams replace those of micturition. These patients often become congenital hypochondriacs who swell the ranks of those who suppose themselves suffering from spermatorrhea, and who after gonorrhea hypnotize themselves concerning the urethra and are thus able to see a constant discharge of semen.

The cases of incontinence due to retention of spasmodic origin are readily cured by the regular passage of catheters and sounds. Once daily the bladder is comparatively evacuated. Once or twice a week full sized sounds are passed after the catheter. Treatment is continued for about a month, ameloiration is usually rapid, and the cure complete. Should incontinence of overflow result not from spasm of the sphincter but from paresis of the detrusors, the only treatment would, of course, be faradization. [Most of the local measures advocated in this article, it seems to us are quite inadmissible in children.—*Editor.*]

Foreign Bodies in the Ear.—Gurnett (*Philadelphia Polyclinic*), in commenting upon a case of foreign body in the ear occurring in his practice, advances the following practical deductions:

1. Always examine an ear said to contain a foreign body, and find out whether such is the case before endeavoring to remove the foreign substance.

2. Whatever a child puts into its ear, or allows to be placed there, is placed there easily and painlessly, and can be as easily and painlessly removed by any physician who can properly syringe the ear.

3. A foreign substance was never known to be impacted in a child's ear by the child. Neither has a foreign body ever been impacted in the ear by syringing.

4. When impaction has occurred, or any injury to the ear, after the insertion of an inanimate substance by the child into its ear, such injuries have been the result of instrumental endeavors at extraction by means of probes, hooks, forceps, etc. The latter are never needed by anyone at first, as the syringe will suffice in all cases where no violence has been exerted upon the ear. Instruments of any other kind should never be employed at any time by any hand but the most skilled.

5. If animate bodies, insects, etc., get into the ear, a few drops of oil will smother them, and they can then be syringed from the ear. Maggots can be destroyed by a few drops of ether or chloroform put into the ear. They can then be lifted out by means of forceps. But this latter act can be performed only by an expert. However, the intense pain caused by the presence of maggots in the ear can be allayed by the use of chloroform in the ear, as stated above.—*International Medical Magazine.*

American Medical Association.

SECTION ON PEDIATRICS.

Denver, June 7-10, 1898.

President,
J. P. Crozer Griffith, M.D., Philadelphia.

Secretary,
Edwin Rosenthal, M.D., Philadelphia.

EXECUTIVE COMMITTEE.

Edward H. Small, Pittsburgh.
A. C. Cotton, Chicago.
J. A. Larrabee, Louisville.

The first session of the Section will be called to order on June 7th, at *3* P.M. Morning sessions will be opened at 9 o'clock and afternoon sessions at *3* o'clock, on June 8th, 9th, and 10th. The first session will be devoted to diphtheria and croup and their treatment; the second session, to tuberculosis in its various forms; the third to typhoid fever and the infectious diseases. The morning session of June 9th will be devoted to nervous diseases of children and miscellaneous papers; the afternoon session of that day, to infant feeding and diseases of nutrition. The two closing sessions will be devoted to miscellaneous subjects. Fifty-nine papers are announced, and the meeting gives promise of being one of decided success.

The dinner of the section will be held on the evening of June 7th, at 8 o'clock.

ARCHIVES OF PEDIATRICS.

VOL. XV.] JULY, 1898. [No. 7.

Original Communications.

THE AMERICAN PEDIATRIC SOCIETY'S COLLECTIVE INVESTIGATION ON INFANTILE SCURVY IN NORTH AMERICA.*

The subject of infantile scurvy has so recently come into prominence, and still presents so many mooted questions, especially regarding its etiology, that it was the decision of the American Pediatric Society a year ago to undertake a collective investigation of the matter, based upon the cases occurring in America. This seemed particularly needed, as no other such study upon a large number of cases has yet been made in any country.

The committee, which is now making its report, was accordingly appointed. It has been diligently at work during nearly a year, and has used every means in its power to reach reports of cases of the disease. A list as accurate as possible was prepared of all the medical journals of North America, and a notice of the proposed investigation was sent to each, inviting correspondence on the part of all readers. Letters were sent to the secretaries of the county societies in a large number of the States of the Union requesting that notice be given at the meetings. Letters were also addressed to the professors of diseases of children in all the regular medical colleges of the United States. The "Index Medicus" was searched for the names of those who had published reports of cases, and letters were addressed to all of them, as indeed to all physicians of whom even the rumor had come of probable cases under their charge. Circulars were printed containing questions to be answered, and were sent to all the members of the American Pediatric Society, to all physicians applying for them, and finally wherever there seemed any chance of getting a response.

The questions contained in the circular requested information on the following points: Whether the case was seen in hospital or private practice; the race, sex, and age; the hygienic surroundings, family history, and previous illnesses; full details of feeding from birth, and the influence which the food appeared to have had upon the development of the disease; the symptoms in detail, with special reference to pain and its location, apparent paralysis or inability to move, swellings, fractures, hemorrhages, the condition of the gums, the presence of fever, the condition of the urine and bowels, the presence of anæmia or mal-nutrition and of rickets or any other complicating diseases, and the character of the first symptom to develop; the treatment in detail, with duration of illness, and the time before decided improvement was discovered; the direct cause of death in fatal cases, and the *post-mortem* findings; and finally, whether the case had been published previously.

---

* Reported at the Tenth Annual Meeting, Cincinnati, June 2, 1898.

The committee has been surprised and pleased at the large number of replies received. There are other cases of which it has knowledge of which no reports could be obtained, and undoubtedly many more whose existence was not discovered. But in all the committee has collected 379 cases seen by 138 observers. Some of the cases are very incompletely reported, but in the majority of instances the answers are for the most part satisfactory. No cases needed to be excluded as instances of mistaken diagnosis, although a very few were somewhat doubtful.

The topics covered by the questions can best be taken up for the most part seriatim, stating merely what the reports state, without vouching for the correctness of opinions.

RACE.—The race to which the subjects of the disease belong is stated in 372 cases. It is not given with definiteness sufficiently often to allow of an analysis further than to say that there were 367 white, 4 black, and 1 Chinese.

SEX.—Sex shows out of 372 cases, 189 male, *i.e.*, 51 per cent.; and 183 female, *i.e.*, 49 per cent.; a difference not decided enough to indicate that sex is an etiological factor. In the remaining cases the sex is not mentioned.

AGE.—Age is a very important matter. Although strictly speaking, the age of the cases of infantile scurvy should be limited to those under two years, the committee has ventured to include a few in children slightly or decidedly older than this; since the etiology and symptoms are not different in any respect. Question IV. on the circular reads: "Age when seen with Scurvy," while XIV. reads: "Duration of Illness Before Treatment was Commenced." By combining the answers to these two questions, the age at which the illness developed could be determined in most instances. Reliable information was given in 359 cases; in the remaining number the age was unknown or was not stated. The accompanying tabular arrangement shows the number of cases developing at different ages:

AGE WHEN SCURVY DEVELOPED.

Age.	No. of Cases.	Percentage.	Age.	No. of Cases.	Percentage.
3 weeks,	1	.27	16 months,	7	1.70
1½ months,	1	.27	17 "	6	1.67
2 "	3	.83	18 "	7	1.70
3 "	2	.55	19 "	4	1.11
4 "	9	2.50	20 "	2	.55
5 "	5	1.40	22 "	1	.27
6 "	13	3.62	23 "	1	.27
7 "	33	9.19	2 years,	2	.55
8 "	41	11.42	2 years, 3 mo.	1	.27
9 "	47	13.09	2 " 6 "	1	.27
10 "	51	14.20	2 " 7 "	1	.27
11 "	26	7.24	2 " 8 "	1	.27
12 "	25	7.00	3 " 6 "	1	.27
13 "	25	7.00	4 " 2 "	1	.27
14 "	22	6.12	6 "	1	.27
15 "	17	4.73	9 "	1	.27

It will be seen that the disease is most apt to develop between the ages of seven and fourteen months, inclusive. The youngest case was that reported by Dr. A. Matheson of Neillsville, Wis. This was a child of four weeks who had already been ill five days when first seen. The child was fed at the breast. Its hygienic surroundings were poor. The disease exhibited perfectly typical symptoms and ended fatally.

The oldest child, reported by Dr. J. H. Fruitnight, was one of nine years, and was also a typical case, rapidly recovering under dietetic treatment. The cause appeared to be improper diet.

Social Position.—Of 379 cases it is interesting to note that 83 per cent. occurred in private practice, and only 17 per cent. in hospital practice. Although no absolute class distinctions can be based on these figures, yet they point very positively to the greater tendency of the disease to occur among the rich or the well-to-do. This tendency is still further illustrated by the statements of the writers regarding the *hygienic surroundings* of the cases. In 303 cases these are described as good, and often the statement is volunteered that they were of the very best. In 5 they were doubtful, and in only 40 are they described as bad. The figures of the report would therefore seem to indicate that the influence of bad hygienic conditions upon the etiology of the disease is extremely limited.

PREVIOUS HEALTH.—Out of 285 cases suitable for study, it is distinctly stated in 167 that the previous health had been good. In 118 the child had suffered from various diseased conditions which may be enumerated as follows:

Bronchitis, 5; chickenpox, 1; constipation, 1; convulsions, 3; cretinism, 1; diarrhœal conditions, 45; eczema, 1; furunculosis, 1; indigestion, 22; influenza, 6; malaria, 1; measles, 7; pneumonia, 5; rheumatism, 1; scurvy (previous attack), 1; scrofulous diathesis, 1; typhoid fever, 1; whooping cough, 2.

It is evident that the occurrence of most of these diseases can only be considered as accidental. There is a striking preponderance of instances of digestive disturbance. This probably is an indication that the faulty diet which occasioned the scurvy produced the indigestion also. It is no proof that the digestive disease itself bore any etiological relation to the constitutional affection. This is clearly the view of the correspondents, for, in answer to the question of the circular, a belief in any other cause than diet is expressed in only 24 instances.

Rickets, anæmia, and mal-nutrition are not mentioned in the foregoing list. They will be referred to later.

Attention may be called to the instance of a second attack of scurvy reported by Dr. L. E. Holt. The child was eighteen months of age at the time of the second attack, the previous one having developed four months before. The first attack followed the use of Mellin's food and sterilized milk. Recovery followed in a week upon a diet of sterilized milk and beef juice, no fruit juice being given. The second attack followed the use of Reed & Carnrick's soluble food. The patient in this attack was in a wretched condition and died in eight days.

The case of scurvy developing in a cretin, reported by Dr. A. Caillé is also interesting. The child was a typical cretin of fourteen months. Scurvy followed the use of condensed milk. Recovery was very prompt under the administration of sterilized milk, fruit juice and cereals.

FAMILY HISTORY.—This too appears to exert little or no influence. In 129 cases the family history is stated to have been good, and in 97 it is negative. In 74 the following diseases are mentioned in the family:

Alcoholism, 2; anæmia, 2; asthma, 1; carcinoma, 1; caries of spine, 1; diarrhœa, 1; eczema, 1; gout, 2; neurotic tendency, 6; paresis, 1; pneumonia, 1; rheumatism, 16; sciatica, 1; scurvy, 1; syphilis, 7; tuberculosis, 29; uricacidæmia, 1.

DIET.—The most important etiological factor, according to general opinion, is a dietetic one. Consequently, the committee has paid particular attention to this point. When correspondents did not make the matter quite clear in their answers, personal letters were addressed to them, asking for further information. A large number of such letters have been written, and replies received in most instances. Full details were asked regarding diet from birth onward, and the question of food used at the time the scurvy developed, or so shortly before that it might seem to be associated with it, was particularly emphasized. The question was also asked, whether in the opinion of each correspondent there was reason to believe that the disease depended on the nature of the food used. An affirmative answer was received in 275 cases; negative, and the disease attributed to other causes, in 24. The committee is not in a position to judge of the correctness of this view, nor can it claim that the disease *did* arise in any instance as the result of the diet employed. It would make merely the following statements of the food employed at or shortly before the symptons of scurvy were observed, according to the reporters' replies.

Any accurate percentage analysis of the report is impossible, both because the correspondents have not always stated the exact nature of the food, and because in very many instances more than one form of food was given. Perhaps the following summary of some of the main divisions may be of value, remembering, however, that cases are repeatedly counted twice; *e.g.*, one case may be counted in the condensed milk class and again in the sterilized milk division.

FOOD USED AT OR SHORTLY BEFORE SCURVY DEVELOPED.

Number of cases in which the character of the food is specified, 356.

Food given as follows:

Breast Milk.—Alone, 10; with raw milk and amylaceæ, 1; with sterilized milk and amylaceæ, 1; total, 12.

Raw Milk.—Alone, 4; with breast milk and amylaceæ, 1; total, 5.

Milk (nothing said about heating).—Alone, 8; peptonized, 4; with amylaceæ, 4; total, 16.

Sterilized Milk.—Alone, 68; with proprietary foods, 21; with amylaceæ, 8; peptonized, 10; total, 107.

Pasteurized Milk.—Alone, 16; with proprietary foods, 2; with amylaceæ, 1; peptonized, 1; total, 20.

Peptonized Milk.—Nothing further stated, 3; sterilized, 8; pasteurized, 1; with proprietary foods, 1; with amylaceæ, 1; total, 14.

Amylaceous Food (not proprietary).—Alone, 6; with breast milk, 3; with milk, 5; with sterilized milk, 8; with pasteurized milk, 1; with peptonized milk, 1; total, 24. (9 of these were oat meal).

Table Food.—Nothing else mentioned, 11; with condensed milk, 1: total, 12.

Mellin's Food.—Nothing further stated, 42; with condensed milk, 22; with sterilized milk, 16; with pasteurized milk, 2; with other proprietary food, 1; total, 83.

Malted Milk.—Nothing further stated, 44; with cream, 1; with amylaceæ, 1; with other proprietary foods, 2; total, 48.

Condensed Milk.—Alone, 32; with milk, 1; with cream, 1; with other proprietary foods, 3; with table food, 1; total, 38.

Reed & Carnrick's Soluble Food.—13.

Imperial Granum.—6.

Liebig's Food.—Alone, 1; with condensed milk 1; total, 2.

Lactated Food.—Alone, 3; with condensed milk, 1; total, 4.

Nestle's Food.—Alone, 1; with sterilized peptonized milk, 1; total, 2.

Among other articles of diet mentioned by correspondents, each in one instance, are: Gardner's food, Robinson's barley, Ridge's food, Brush's food, animal broths, Bartlett's pepsinated food, Lactopræparata with Malted milk.

There are a number of instances in which the writers mention "proprietary foods" without further designation. In all 214 cases (60 per cent.) were fed on proprietary foods.

The effect of dietetic treatment has such an important bearing upon the etiological influence of diet that the whole matter will be discussed more fully under Treatment.

SYMPTOMS.—The symptoms in infantile scurvy are so typical and well known that they would appear to need little further study. Nevertheless, the attention which has been directed to them by the questions of the circular has not been without fruit.

FIRST SYMPTOM TO DEVELOP AND ORDER AND TIME OF OTHER SYMPTOMS.—In response to this question the answers have not been altogether satisfactory. Undoubtedly in a large number such early symptoms as anæmia and mal-nutrition were overlooked or were not included by the readers as symptoms of the disease. Then in a large number, perhaps the majority of cases, answers have not made it quite clear whether the correspondent intended that a certain number of symptoms developed in the order in which the names are written, or whether they all were noticed at one time. Presuming that the first is the writer's intention, we make the following statement of the first symptom seen, basing this on 327 cases. The order of symptoms is too complicated and too uncertain to warrant a statistical arrangement.

FIRST SYMPTOMS SEEN.—Pain and tenderness, 145; affection of gums, 42; interference with motion, 36; anæmia, 27; cutaneous hemorrhages, 22; swellings, 16; restlessness, 6: anorexia, 5; debility, 5; diarrhœa, 5; constipation, 2; hemorrhage from nose, 1; hemorrhage from mouth, 1; hemorrhage from rectum, 1; hæmaturia, 3; "hæmatoma of tongue," 1; irritability, 3; vomiting, 1; fever, 1; opisthotonos, 1; sweating, 1.

PAIN ON MOTION OR HANDLING.—Pain is clearly a very prominent symptom of the disease. Generally it is evident only when the child is moved, or tries to move itself. Sometimes it is so intense that the approach of any one to the bedside is sufficient to cause the child to scream out through fear of being touched. Pain is reported present in 314 instances. In most of the remaining, no answer was made, and it is probable that the symptom could not have been a prominent one. The locality of the pain in the cases where there were accurate details was as follows:

Legs, 120; legs and arms, 25; legs and one arm, 11; legs and body, 4; one leg, 13; one leg and one arm, 1; one arm, 1; back, 1; back and legs, 1; back and leg, 1; back and thighs, 1; thighs, 1; hips and thigh, 1; one thigh, 2; one hip, 2; knees, 1; knees and ankles, 2; knees, ankles and shoulders, 1; knees, ankles and wrists, 2; knees and arms, 1; one knee, 1; one ankle, 1; ankles, 1; ankles and feet, 1; ankles and elbows, 1; elbow, 1.

PAIN WHEN AT REST.—In 91 cases pain seems to have been present, even when the child was still; while in 134 it is definitely stated as absent under this condition.

INTERFERENCE WITH MOTION.—The symptom variously described as *paralysis, pseudo-paralysis* and *disability* or *unwillingness to move* is reported frequently. It probably depends in every instance upon pain, since there is no evidence that actual paralysis occurs in the disease. In 319 cases interference with motion of this nature existed.

Rigidity is described as present in 96 cases and absent in 106. It is due to pain in most instances, but perhaps in others may have been occasioned or increased by the presence of swelling.

The parts of the body in which motion has been interfered with in any way in the cases reported, and the locality mentioned in detail, may be enumerated as follows:

Legs, 159; legs and arms, 55; legs and one arm, 14; legs and one hand, 2; one arm, 3; legs and thighs, 1; thighs, 3; one leg and one arm, 1; one leg, 27; one thigh, 2; hips, 1; one hip, 2; one hip and thigh, 1; one hip and knee, 3; hip, leg and shoulder, 1; hip, elbow and shoulder, 1; one knee, 4; one ankle, 2: ankles, knees, hand and wrist, 1.

POSITION OF THE LIMBS.—To a question regarding the position of the limbs, about which Barlowe speaks so definitely, there have been replies in 205 cases. In 17 of these the position was normal. In the balance we find the position of the limbs as follows:

Flexed, 152; extended, 23; flexed and abducted, 1; flexed and adducted, 1; flexed and everted, 1; abducted, 1; everted, 3; everted and extended, 2; toes extended, 1; feet extended, 3.

WEAKNESS OF THE BACK.—The occurrence of weakness of the back, a symptom which Barlowe says is marked, is mentioned as present in 97 of the cases reported to the committee and as absent in 108. In the remaining nothing is said of it.

DEPRESSION OF THE STERNUM.—This condition is likewise emphasized by Barlowe as being sometimes striking and characteristic. It is mentioned in 34 cases, but said to be absent in 170 others. It is not certain in the cases of the report how frequently the condition had developed acutely as a result of scurvy and how often it had already been produced by a previously existing rachitis.

SWELLINGS.—The effort has been made by analyzing the cases collected to determine the position of local swellings, whether these were situated in the joints or the shafts of the limbs, in the soft tissues or in the bones, and whether any redness was present. The answers are not clear in every instance, and are frequently somewhat contradictory, partly, perhaps, from failure of the observer to understand the question, and partly from lack of careful discrimination between sub-periosteal and other effusions, and between effusion into a joint and that about it. The great irregularity also of the distribution of the swelling renders an accurate tabular arrangement too complicated. Remembering that in many cases more than one part of the body was involved and that the figures given do not mean that only the portion mentioned is affected in these cases, the following division may be made:

Joints (or probably oftener about joints) involved in 165 cases. Location given in 101; *viz.:*

Knees, 73; ankles, 28; wrists, 12; hand, 1; elbow, 3; shoulder, 5; hip, 6.

Shafts of limbs involved in 179 cases. Location given in 123; *viz.:*

Thighs, 59; legs (below knee), 61; "legs" (not further stated), 11; forearm, 5; upper arm, 4; "arm," 5; ribs, 1; scapula, 1; ilium, 1.

The gross results of the answers regarding the tissues in which the swelling occurred give:

Swelling in soft tissues, 97.
Swelling, sub-periosteal, 114.
Swelling in both situations, 16.

In 69 cases the swollen parts were reddened also. It is stated that there was no redness in 121. A more general swelling, to be classified rather as œdema, is described in 68 cases and stated to be absent in 98.

In regard to the swelling or protrusion of one or both eyes which has been described by writers, the symptom is said to have been absent in 110 cases and is reported present in 49. In 9 of these swelling only is mentioned, in 18 protrusion only, and in 22 both are referred to.

GUMS.—The condition of the gums and mouth is one of extreme interest. In 16 cases it is distinctly stated that the gums were entirely unaffected, while in 313 they were diseased. The degree of involvement varies from slight swelling to great sponginess and even ulceration. The degree and form of the affection in the cases suitable for study may be seen in the following table:

Swelling, absent, 14; present, 293.
Sponginess, absent, 27; present, 249.

Discoloration, absent, 23; present, 259.

Bleeding, absent, 64; present, 188.

Ulceration, absent, 101; present, 91.

The relation of the affection of the gums to the presence of teeth is of much interest. In nearly all the cases of scurvy in this report teeth were present, but what influence this has is not quite clear, since experience teaches that curiously it is usually the gums of the upper jaw which are most affected, although the lower teeth naturally are the first cut. Statistics on the portion of the gums involved were not furnished sufficiently to allow of conclusions; but regarding the teeth it is to be noted that of 359 cases suitable for comparison, teeth had already appeared in 314 instances, *i.e.*, 87.5 per cent.; while in only 45 cases, *i.e.*, 12.5 per cent., were there no teeth. In studying more carefully these 45 cases of scurvy without teeth, we may make the following analysis:

No teeth; gums normal, 21 cases.

No teeth; gums affected, 24 cases.

The conditions present in the latter group were as follows:

Swelling, 19 cases; sponginess, 14 cases; bleeding, 5 cases; discoloration, 17 cases; ulceration, 4 cases.

This is a proof that affection of the gums may occur equally well when there are no teeth as when teeth have developed. The fact that in the great majority of cases of infantile scurvy the presence of teeth and the affection of the gums is associated, depends merely on the fact that the disease generally develops at an age when teeth naturally have been cut.

CUTANEOUS HEMORRHAGES.—These have occurred with frequency in the cases reported. Accurate data are given in 353 cases. Of these, cutaneous hemorrhage is reported present in 182 and absent in 171. There is much doubt about the accuracy of the writers in their classification of the hemorrhages according to size, and the proper use by them of the descriptive names employed, inasmuch as the question on this point did not specify clearly. In 99 instances the presence of "ecchymoses" is mentioned. In 83 "purpuric eruption" is reported and in 37 "petechiæ." In 13 the nature of the lesion is not specified.

HEMORRHAGE FROM MUCOUS MEMBRANES.—Data are available in 361 cases. Of these there were no hemorrhages from any mucous membrane in 196, while in 164 they occurred. In 93 cases there was hemorrhage from the mouth. This includes the cases where bleeding from the gums is described by writers. In 33 cases there was bleeding from the nose; in 2 from the stomach, and in 37 from the bowels. Cases of hæmaturia are not included here, and will be referred to later.

FRACTURES.—Fractures in infantile scurvy are usually separations of the epiphyses merely. Even this would seem to be rare, for fracture of any kind is mentioned in only 9 of our cases. In 342 it is distinctly stated to have been absent, and in the remaining the question is not answered.

FEVER.—Probably in the majority of the cases of the disease upon which this report is based no temperature record has been made. In 93 cases it is stated that there was no fever; in 182 it was present and in the remaining no answer is given. In the cases where present it is described as slight in 116 instances, moderate in 23, high in 8, and irregular in 6. Clearly, fever is not a prominent symptom of the disease, and probably often, when present, depends on accidental causes.

BOWEL MOVEMENTS.—The following conditions are mentioned:

Bowels regular, 74.
Bowels irregular, 15.
Constipation, 126.
Diarrhœa, 65.
Bloody diarrhœa, 12.

URINE.—Judging from the number of instances in which no answers have been returned, no examination of the urine has been made in most of the cases. It is reported as examined for albumin in 163 cases; in 33 of these albuminuria is reported and in 130 it was absent. Tube casts were present in 13 instances, absent in 13, and no observation reported in the others.

Properly speaking the occurrence of hæmaturia should be discussed under the title of hemorrhage. It is mentioned as present in 22 cases only. Of other abnormal conditions of the urine the following may be mentioned: Urine very acid, 1; urine scanty, 9; urine suppressed, 1; urine increased in quantity, 3; glycosuria, 1; hæmoglobinuria, 1; pus (from cystitis), 1; phosphates increased, 1; chlorides increased, 1.

ANÆMIA; MAL-NUTRITION.—These conditions, already referred to as often the earliest symptoms of infantile scurvy, may have been the first evidences of the disease in many of the cases on which this report is based. In other cases they must be regarded as complicating affections only. Answers are not full enough to allow of satisfactory conclusions on this point.

Anæmia is said to have been present in 254 cases, as follows:

Anæmia present (without specifying degree), 47.

Anæmia slight, 66.

Anæmia moderate, 32.

Anæmia marked, 109.

Blood examinations were made in 15 cases and the conditions noted as follows: The percentage of hæmoglobin was much reduced in all the cases, 8 in number, in which an examination was made, some being as low as 35 per cent. Of the 7 cases in which the red blood corpuscles were counted, all showed a reduction except 2. In these 2 the number was normal or nearly so, but the hæmoglobin was 50 and 35 per cent., respectively. Leucocytosis was present in 5 cases. Poikilocytosis in 2. In only one instance was there a differential count of the leucocytes made.

Of 217 cases in which the question is answered, *emaciation* is recorded in 167 and is said to have been absent in 50.

Mal-nutrition was observed in 178 cases out of 216, in which replies were made as follows:

Mal-nutrition present (without specifying degree), 108; slight, 20; moderate, 7; marked, 43.

RICKETS.—Infantile scurvy has so often been described as "scurvy rickets" and "acute rickets," that the investigation of the actual relationship of the two diseases was one of the matters to which the committee directed especial attention. The question upon the circular reads as follows: (*a*) "Any symptoms of rickets present? (*b*) Slight or well marked? (*c*) What relation in time of development did they bear to the scurvy?" Satisfactory answers were received in 340 cases; in 152 of these (45 per cent.), there were symptoms of rickets present, slight in 72, marked in 64, and the degree not mentioned in 16. In the remaining cases (55 per cent.), rickets is definitely stated to have been absent. With regard to the relation in time of development, it is stated in 50 cases that the rickets was first present; in 14 that it developed with the scurvy, and in 2 after it. There does not seem to be evidence as far as this investigation teaches that the association of rickets and scurvy is at all intimate. Very possibly the same defect in diet which produced the one produced the other also, but the rapid recovery under treatment which the scurvy underwent did not apply to the rickets. This seems to indicate only accidental association of the two diseases; certainly not any causal relation between them.

OTHER COMPLICATING CONDITIONS.—A variety of affections are mentioned complicating scurvy in a number of cases, as follows:

Bronchitis, 5; cretinism, 1; enlargement of inguinal glands, 1; "cerebral symptoms," 1; convulsions, 1; pneumonia, 2; boils, 1; irritability, 1; vomiting, 4; eczema, 2; enuresis, 1; sweating of the head, 1; tympanites, 1; caput medusæ, 1; diaphoresis, 1; pertussis, 2; insomnia, 1; anorexia, 2; post nasal discharge, 1; measles, 1; restlessness, 1; phimosis, 1; indigestion, 2; laryngismus stridulus, 1; cystitis, 1.

DIAGNOSIS.—The study of diagnosis has been only incidental, based upon the mistakes made before the disease was recognized in certain cases. The only disease for which infantile scurvy was repeatedly taken appears to have been rheumatism. In several instances the affection of the legs was supposed to be due to sarcoma. The apparent paralytic condition has also been the cause of error in some instances.

DURATION OF ILLNESS AND PROGNOSIS.—The disease is essentially chronic; its course terminating only on the institution of proper treatment. This seems to be proved by the answers contained in the circulars. To the question concerning the *duration of the disease before the case came under observation*, replies were received in 306 cases, of which the following analysis may be made:

DURATION OF DISEASE BEFORE TREATMENT WAS COMMENCED.

DAYS.	CASES.	WEEKS.	CASES.	MONTHS.	CASES.
2	3	1	15	1	18
3	3	2	33	2	42
5	2	3	58	3	31
8	1	4	22	4	14
9	1	5	8	5	4
10	9	6	29	6	7
24	1	7	6	7	2
		8	1	10	1
		10	3	12	1
				2½ yrs.	1

Intensely interesting in this connection are the replies to the next two questions: First. *Duration of illness after treatment was commenced*, and second, *Duration of treatment before marked improvement was noticed.* To the first question replies concerning 308 cases were received. Of course those fatal during the attack of scurvy are not included here nor those which passed from observation.

Still more striking are the answers to the second question, as to the time when marked improvement was first noticed. There are 311 cases suitable for study in this category, excluding fatal cases and those passing from observation as before. The replies are often astonishing. Nothing is more striking than the speed with which these reports show a grave constitutional disease disappearing under proper treatment. There is certainly no disease for which a more specific treatment can be said to exist. The replies to the last two questions may be conveniently stated in the following tables:

DURATION OF TREATMENT BEFORE MARKED IMPROVEMENT WAS NOTICED.

Days.	Cases.	Weeks.	Cases.	Months.	Cases.
1	19	1	47	1	6
2	58	2	27	2	4
3	46	3	8	3	4
4	26	4	1		
5	19	5	1		
6	1	6	1		
7	2				
8	2				
9	1				
10	7				
12	2				

Reported as prompt recovery, 13; at once, 15; immediate, 1.

DURATION OF TREATMENT BEFORE RECOVERY WAS COMPLETE.

Days.	Cases.	Weeks.	Cases.	Months.	Cases.
1	6	1	48	1	28
2	5	2	54	2	14
3	14	3	36	3	5
4	8	4	14	4	2
5	5	5	6	5	1
6	1	6	14	6	2
8	2	7	1	7	1
10	17			8	1
12	3			9	1
13	3				
15	2				
16	1				

Reported as immediate, 4; almost immediate, 9.

TREATMENT.—Not so much could be learned of the value of treatment as could be desired on account of the fact that in nearly all cases we have a combination of diet and of medicinal measures, including the use of fruit juices, and it is impossible to determine absolutely which was the active curative agent.

Taking the cases in which treatment was effectual and which are suitable for study, the results may be stated as follows:

I.	Cases recovering under treatment with drugs only (no change in diet),	0
II.	Cases recovering under the use of fruit juice alone (no change in diet),	3
III.	Cases recovering under the use of beef juice alone (no other change in diet),	2
IV.	Cases recovering under the use of beef juice and fruit juice combined, with or without drugs (no change in diet),	6
V.	Cases recovering under the combined effect of change of diet, often including beef juice, and the employment of fruit juice, with or without drugs,	257
VI.	Cases recovering under change of diet, often including beef juice, and use of drugs (no fruit juice).	20
VII.	Cases recovering under change of diet alone, often including beef juice (no fruit juice),	38

These last two may be properly considered together, since there is no evidence that any treatment with drugs has an appreciable effect upon the disease. So many of the reported cases were treated with drugs alone without result before the correct diagnosis was made and other treatment instituted, that this belief is amply justified. Combining, therefore, divisions VI. and VII., and comparing the statements of the writers regarding the diet employed during treatment and that employed when the scurvy developed, we may make the following table based upon 58 cases.

Again the committee would state that no claim is made that the recovery was the result of the change, but that it quotes merely the statements of the correspondents to the effect that recovery took place after the change was made.

VI. and VII.—Recovery Following Change in Diet Alone, With or Without Drugs. (No Fruit Juice Employed).

Mellin's food to milk and beef juice,	2
“ “ to raw milk and beef juice,	1
“ “ to modified milk,	4
“ “ to modified milk and beef juice,	2
“ “ to diet and beef juice,	1
“ “ and sterilized milk to beef juice and broths,	1
“ “ and sterilized milk to sterilized milk and beef juice,	2

Mellin's food and condensed milk to modified milk,	1
“ “ and condensed milk to raw milk,	2
“ “ and sarcopeptone to fresh milk and beef juice,	1
Condensed milk to fresh milk and beef juice,	1
“ “ to sterilized milk and diet,	1
“ “ to lactated food and raw milk,	1
“ “ to sterilized milk,	1
Malted milk to milk-and diet,	1
“ “ to raw milk and beef juice,	1
“ “ and amylaceæ to modified pasteurized milk and beef juice,	1
Sterilized milk to diet and beef juice,	1
“ “ to fresh milk and beef juice,	2
“ “ to raw milk,	4
“ “ to diet,	6
“ “ to raw milk and beef juice,	1
“ “ to sterilized milk and beef juice,	1
“ “ peptonized to raw milk and beef juice,	1
“ “ to pasteurized milk and diet,	1
“ “ “ “ “	1
Pasteurized milk to raw milk,	2
“ “ to fresh milk and beef juice,	1
“ “ to sterilized milk and broths,	1
Raw milk to amylaceæ,	1
Breast milk to peptonized milk and broths,	1
“ “ to sterilized milk,	1
Lactated food to raw milk and beef juice,	1
Reed & Carnrick's soluble food to modified milk,	1
“ “ “ “ “ to baked potato,	1
“ “ “ “ “ to beef juice,	1
Imperial granum to raw milk and beef juice,	1
Patented food to diet,	1
Ridge's food to diet,	1
Diet (poor) to diet (better),	2
Bartlett's pepsinated food to fresh milk,	1

It must be noted with regard to this table and those following that the term “modified” milk is used very loosely by the reporters. Occasionally it is specified to be laboratory milk, but much oftener this is not the case, and we are unable to know whether the modification was done at home or not, and whether the milk was heated or not. Presumably it was pasteurized in many instances. Where the term "fresh" milk is employed in the table, we have been unable to learn by additional correspondence whether "raw" milk is meant or whether only a change from proprietary food to cow's milk is intended. The term "diet" as employed in the tables either expresses the fact that a large and varied number of different forms of diet were tried, too complicated to be detailed, or else quotes merely the statement of the writers that a change of diet was made, the original food probably being abandoned entirely unless otherwise stated.

The following table shows the food employed in divisions I., II., III. and IV., in which the diet was the same (except sometimes for the addition of beef juice) while the scurvy was developing and while it was recovering.

RECOVERY FOLLOWING WITH NO CHANGE OF DIET DURING TREATMENT.

I. Treatment with drugs only,		0
II. Treatment with fruit juice only,		3
Mellin's food (milk sterilized),	1	
Sterilized milk,	2	
III. Treatment with beef juice only,		2
Sterilized milk,	1	
Raw milk,	1	
IV. Treatment with combined beef juice and fruit juice only,		6
Sterilized milk,	2	
Sterilized milk and broths,	2	
" " " amylaceæ,	1	
Table food,	1	

Division V. contains by far the largest number of cases, 257 in all. The changes in diet employed are much too complicated to be stated fully in a table. Moreover, they are of little value, since the treatment was such a composite one, *viz.:* change of diet combined with the use of fruit juice in every case, and often of beef juice and of drugs as well. A few of the more striking classes of cases may be selected as follows:

V.—RECOVERY FOLLOWING CHANGE OF DIET COMBINED WITH FRUIT JUICE, WITH OR WITHOUT DRUGS.

Condensed milk to milk, variously treated,	23
Imperial granum to milk, variously treated,	7
Lactopræparata to raw milk,	2

Lactated food to milk,	1
Reed & Carnrick's soluble food to milk, variously treated,	3
Malted milk to milk, variously treated,	38
Mellin's food to milk, variously treated,	21
Mellin's food and condensed milk to milk, variously treated,	19
Sterilized milk to fresh (probably always raw) milk,	34
Sterilized milk to pasteurized milk,	4
Pasteurized milk to "fresh" or "raw" milk,	9
Pasteurized milk to sterilized milk,	1
Raw milk to sterilized milk,	1
Breast milk to cow's milk, variously treated,	6

The conclusions to be drawn from this combined study of etiology and of treatment seem justifiable only to the following extent:

(1) That the development of the disease follows in each case the prolonged employment of some diet unsuitable to the individual child, and that often a change of diet which at first thought would seem to be unsuitable may be followed by prompt recovery.

(2) That in spite of this fact regarding individual cases, the combined report of collected cases makes it probable that in these there were certain forms of diet which were particularly prone to be followed by the development of scurvy. First in point of numbers here are to be mentioned the various proprietary foods.

(3) In fine, that in general the cases reported seem to indicate that the farther a food is removed in character from the natural food of a child the more likely its use is to be followed by the development of scurvy.

FATAL CASES.—Twenty-nine of the 379 cases are reported to have died. In 2 of these, death seems to have been remote from the attack of scurvy. Of the remaining 27 the causes as enumerated by the reporters are as follows:

Exhaustion, 6; cerebral hemorrhage, 3; diarrhœa, 2; bronchitis, 2; vomiting (?) 1; convulsions, 1; pneumonia, 4; malnutrition, 1; pulmonary hemorrhage, 1; ulcer of stomach, 1; syncope and nephritis, 1; doubtful, 4.

It is difficult to determine in how many of these the scurvy itself could be held responsible for the death; probably in few if any.

AUTOPSIES.—There have been handed in to the committee the reports of 6 autopsies in all, some of them only partial. The salient points of each may be enumerated as follows:

Case of Dr. A. Caillé. Child of nine months, ill about three months. Autopsy showed hemorrhagic spots on the pericardium and surface of the liver; sub-periosteal hemorrhage of the long bones.

Case of Dr. L. E. Holt. Child of twelve months; ill for two months. Autopsy showed separation of the lower epiphysis from the shaft of the left femur; extensive sub-periosteal hemorrhage of the left femur; sub-pleural hemorrhages; broncho-pneumonia.

Case of Dr. L. E. Holt. Child of thirteen months; ill about two months. Autopsy showed sub-periosteal hemorrhage and separation of the lower epiphysis of the left femur; hemorrhages into the muscles of the left thigh, swellings about the opposite knee and both ankles; knee-joints normal; minute sub-pleural hemorrhages; well marked exudative nephritis; minute hemorrhages on the surface of the liver.

Case of W. P. Northrup. (The first autopsy in the United States). Child of eighteen months; ill about one month. Autopsy showed sub-periosteal hemorrhage of both tibiæ and both femora; detachment of the lower epiphysis of the left femur and maceration of lower end of shaft; broncho-pneumonia of left lung; no rachitic or syphilitic changes on microscopical examination.

Case of Dr. L. Starr. Child of thirteen months; ill for three months. Autopsy showed "right leg from knee to ankle stuffed with a puffy mass replacing normal tissue. Separation of both bones one inch above ankle."

Case of Dr. C. W. Townsend. Child of ten months; ill three to four weeks. Autopsy showed bloody serum in pleural cavity; perforating ulcer of the stomach; tubercular (?) process in peritoneum.

In conclusion the committee would thank publicly their correspondents who have sent their reports of cases and who are enumerated below. They are also greatly indebted to Dr. Wm. Schleif of Philadelphia for valuable aid in analyzing the circulars received and tabulating the results.

[Signed],

J. P. CROZER GRIFFITH, M.D., Philadelphia,
CHARLES G. JENNINGS, M.D., Detroit, } Committee.
JOHN LOVETT MORSE, M.D., Boston.

MINORITY REPORT.

1. From a study of this report and from due consideration of other known facts, scurvy appears to be a chronic ptomaine poisoning due to the absorption of toxins.

2. It follows the prolonged use of improper food and abnormal intestinal fermentation is a predisposing factor.

3. Sterilizing, pasteurizing, or cooking of milk food is not *per se* responsible for the scurvy condition.

4. A change of food and the administration of fruit juice and treatment of any underlying cause is the rational therapeutic procedure in scurvy.

(Signed) AUGUSTUS CAILLÉ, M.D.

DISCUSSION.

DR. CHRISTOPHER.—Does this report contain any definite conclusions as to the nature of scurvy? I heard Dr. Griffith give part of one. If it does, it seems to me we should strike them out, for we certainly cannot agree upon them. I will move, then, that all parts of the report giving conclusions be stricken out and all parts relating to the collection of data be retained and as such be published. (Seconded). Now, does it contain any conclusions? It certainly seems to me bad policy for this Society ever to adopt conclusions of any pathological matter. Even in so elaborately established a report as that of the Anti-toxin Committee, it is bad policy, and it looks like establishing scientific truths by legislation. The truths are valuable and should be published as far as possible.

DR. GRIFFITH.—I have had several letters, one just before I came from home, from men who wanted to know the conclusions of the committee. If this is to be of any value it must have some conclusions, because nobody except those deeply interested in scurvy, will read through the report and the tables. We are not to determine as a committee or a Society what produces scurvy, but we are analyzing reports of physicians. If 300 physicians say in so many cases these children were improperly fed and one physician says there was no improper food, the conclusion is before you. We do not say diet is the cause, but we say from the reports of these physicians, diet seemed to be the cause. As in the long German articles, the conclusions are placed at the end. We cannot get out of the fact that the conclusions are there. I think we ought to sum up here and there the facts that the report indicates.

DR. NORTHRUP.—Why should we gather all these statistics and then put them out in a mass. It is like tabulating the work of a hospital without commenting upon what they have done.

would be very sorry to see this work set aside. It would be like a record that appeared not long ago of 500 cases of rheumatism without any comments.

Dr. Morse.—I feel that the conclusions that the committee has drawn up are entirely justified. If anything, they are much milder than the figures seem to indicate. But any further conclusions would call for some expression of opinion from the committee that must be based on their personal experience and it seemed best to leave that out. I feel very strongly that the paper should not be published without the conclusions.

Dr. Jennings.—I sincerely regret that my opportunity for examining the report has not been sufficient to express an opinion upon it. From the examination I made I think that the conclusions of the committee are fully justified. Still, it would have pleased me better to have been present at the full meeting of the committee to hear the various expressions and perhaps my individual opinions might have been modified in that way. But as they stand now, the conclusions very nearly express my conclusions of the results of the investigation.

Dr. Booker.—I went over the conclusions of the committee. There were some things I did not approve of, but we came by various modifications to something of an agreement and I am satisfied to stand by that agreement. The time we had for reviewing the report was very short, but I am willing to stand by the conclusions we came to.

Dr. Caillé.—I think that those conclusions are entirely safe and I do not personally object to them, but I would like to make a very short minority report based upon the cases I have collected. (See page 500).

Dr. Forchheimer.—Would it not be better to have the committee meet again and try to come to some conclusion, so that the report can be received as a whole? I move that the report be referred back to the committee with instructions to report to-morrow.

Dr. Christopher withdrew his motion and the motion made by Dr. Forchheimer was carried.

On the following day Dr. Griffith presented the revised report. Preceding this Dr. Rowland G. Freeman opened a discussion on the subject: "Shall all milk used for infant feeding be heated for the purpose of killing germs? If so, at what temperature, and how long shall this temperature be continued."

General discussion upon the report of the committee and the paper of Dr. Freeman then followed.

Dr. Booker.—I have not had an opportunity to study the report required for a subject of so great importance to form an opinion upon it, and I beg to be excused from subscribing to it.

Dr. Buckingham.—It appears to me that this report in all its bearings is as important a matter as can come before the Society at any time. It is important it should be settled right. It will be a serious thing to have it settled wrong. It seems to me that having heard the evidence offered to us and the reports made to us to-day, that there is just this to be said: if the evidence is accepted there is only one conclusion that can possibly be drawn and that is, the sterilization of milk has to do with the production of scurvy. When Dr. Caillé presented his minority report it seemed to me that what he did was to proffer the evidence that has come from his personal knowledge and the knowledge of his personal friends rather than the observations of people that he knows very little about. There are just two conclusions that can be drawn: Either sterilization of milk produces scurvy or collective investigations are not a safe way of getting information. For my part I am willing to accept either or both, and do accept both conclusions. But I hope very much we shall not insist upon the public accepting a lot of investigations until we are all united in accepting them. For my own part, I believe sterilization produces scurvy and the only reason it does not do it oftener is because of the imperfect way milk is sterilized. A great deal of milk masquerades under the name sterilized milk that is not sterilized.

Dr. Booker.—When the sterilization of milk was introduced it was heralded by the medical profession as one of the most important advances in medicine. After ten years' experience in this method I am still of the same opinion, that it is one of the greatest advances that has been made in infant feeding. It was not claimed in the beginning that sterilization improved the digestion of milk. That part of the question has attracted so much attention that we have lost sight of the real object of sterilizing milk, that is, the prevention of sickness. The most important diseases which we have to deal with among infants are the digestive disorders in the summer time. The sterilization of the milk offers more advantages in checking or preventing those diseases than any other method which has yet been offered. Now has sterilization of milk so far done anything towards diminishing the summer diarrhœas of infants? We have not had reliable statistics to justify us in coming to conclusions. In the first place, sterilized milk has been used heretofore largely among the well-to-do, who are able to give the infants advantages which may of themselves be sufficient to avoid the disease. Again, the methods used for the sterilization of milk have not been sufficient. I believe that disease has been diminished by sterilization of milk and I believe the infantile mortality has been markedly reduced in New York, if I understood the President's address correctly, in the last few years since the sterilization of milk has been largely used there. Whatever the results have been, there is a brighter outlook in the future if we can continue along this line.

There is a great deal to be done in educating people in the handling of milk. If we can continue educating the people in this way, I believe a great deal will be done towards preventing disease in infants. It is possible that sterilization of milk may injure its nutritive properties to a slight extent. The chemical combinations in milk are held very loosely, and heating may be sufficient to destroy these relations. Heating may also coagulate some of the valuable proteids and to this extent the nutritive properties of milk may be somewhat injured. But the injury done by this is far outweighed by the greater advantage offered in preventing disease. As to the temperature at which milk should be sterilized, much depends upon the object of the sterilization and who is doing the sterilizing.

The ordinary methods of sterilizing milk do not sterilize the milk. They do not destroy certain harmful germs, germs which may not be harmful to the child if introduced into its body, but which are injurious to the milk. These germs are destroyed at a low temperature, such as the bacillus lactis aerogenes. Where the hope is only to destroy these germs, and it is understood that this is the object of the sterilization, the low temperature of pasteurization would be preferable, provided the pasteurization were conducted by a person who understood it or had the valuable apparatus presented by Dr. Freeman. Unfortunately, this apparatus is expensive and cannot be introduced where it is most needed. If we turn the sterilization over to the family I believe it is better to resort to sterilization than pasteurization. My own experience has been larger with sterilization than with pasteurization, and I do not believe there is a very great difference in the disturbance of the digestive qualities of the milk and the nutritive qualities by the one over the other. If the milk is to be kept for any time after its sterilization before it is used, as for journeys, it should be thoroughly sterilized, and that means a sterilization of three to six consecutive days at a high temperature for very many hours.

I particularly want to put myself on record that I do not believe the sterilization of milk causes the disturbances that have been claimed for it. I believe that in all the cases if we could get to the true knowledge of the previous management of the milk we would find it is that which has caused the trouble and not the manner of heating. It may be that certain idiosyncracies of the baby may be of such a nature that the sterilization of the milk will cause injury to the baby, but that may occur with any milk. When we analyze milk and find it normal as far as we can judge from the analysis, it may disagree with the infant. The sterilization, I believe, has no other influence in producing disease. I do not believe it produces scurvy. I believe that is due to the handling of the milk before and afterwards. Very few of us who have sent in reports have made examinations of the handling of the milk. I do not, and I believe very few have done so. That is one reason I am not willing to subscribe to the report. If we could sift all these cases I believe we would find some condition in the milk, outside of sterilization, as we do in Mellin's food, which is mentioned in a number of cases under scurvy. It is very seldom Mellin's food is used as a food; it is not intended as a food but is more intended as a sugar for sweetening the milk. It is a valuable addition in some cases when it is used in that way. In all the answers I have received very few have said that they used Mellin's food alone; it is largely used with milk. If we could find out the true condition of the food before the scurvy was produced we would not find that the food bears such a relation to the disease. The whole subject is too complex and too little understood.

Dr. Winters.—Two cases of scurvy which I have seen have a good deal of bearing, I think, on the discussion. One was a child nine months old that was brought to the dispensary too late to be reported to this committee. It was the fifth child, the other four in the family being absolutely healthy. The family history was excellent. This child had extensive changes under the periosteum which extended from the knee down to the ankle. It had the well known blue line beneath the two front teeth. The child had been fed exclusively for six months on sterilized milk. The other case was a baby five months old, brought to my office in consultation. The father and mother were healthy. This child was fed on Walker-Gorden milk and had never had anything else from its birth. That milk had been under sterilization for forty minutes. Here we have two typical cases of scurvy in which the family history has no bearing, one in which there has been four healthy children, both fed on proper food, and the scurvy, it seems to me, was due to the way in which the food was treated. The food in both cases was proper in composition and it had never caused the slightest digestive disturbances. In the case of the baby fed upon Walker-Gorden milk, the food was continued, but it was directed that it should be heated to 150° for ten minutes. The baby recovered. I have seen in all some two or three dozen cases of scurvy. The one case I spoke of was the only one that I have seen in dispensary practice, although I see thousands of children every year. My own impressions are that if the methods of feeding go on until we gradually meet the tenement people, we will also find scurvy in tenement practice. Every case of scurvy, except this one, I have seen in consultation. I have never used anything but a modification of food except in two cases, one a case which I saw with Dr. Reed, where beef juice and fruit juice were used, but the case was fatal.

Dr. Morse.—It seems to me that in approaching a collective investigation of any subject, the first thing necessary is to disabuse our minds of any previous ideas we may have held or failed to hold. Then we should analyze our figures and study the result which they show, and we should not modify our result either because it does not agree with our previous points or because it seems to involve some issues which it is not our province to consider.

In regard to the sterilization of milk it seems to me that we must feel that the cooking of milk to any extent must modify albuminoids, proteid substances, and have some effect on the emulsion of fat. We must also admit that bacteria in milk do harm and for that reason we should heat milk to a certain extent. We have to meet two dangers, and in each individual case we must settle it according to our best judgment. One danger in connection with sterilized milk is that the public has forgotten that there is anything else in connection with baby's food except cooking it.

DR. JACOBI.—I can be very brief, inasmuch as I might have said something similar to what Dr. Morse has said just now. I arise to make a motion that the report and the minority report, and the remarks of Dr. Booker and this whole discussion be printed as it stands. We owe that to those who have done the work and we owe it to ourselves. We should not expect that we can solve the question forever. We must not expect that any report nor anything that any of us say must be accepted by the whole world. It is only a contribution to what has been known before. It would be a pity if the material which has been worked up should be lost. Whoever has spoken last upon this subject feels then that the subject is settled and that there is nothing further to be said about it. That has been so from the beginning of time and it is so now. What we say here and do here and our valuable report should be published, and the medical public who are going to read it will have something new at all events, either a confirmation of their original views or the opposite.

The Chair decided that the motion of Dr. Jacobi was not necessary, since the publication would be made according to the laws of the Society.

DR. ADAMS.— I am very much of the opinion expressed by Dr. Morse. We have a right to express our individual views. The investigation was entered into in all honesty and all deductions should be drawn from the figures presented by the public at large just as in the investigation of anti-toxin. We have a practice in the medical press of giving the public the benefit of individual opinions and this should be an independent investigation and not clouded by individual opinions. I have made observations in sterilizing milk, and I have my own opinions about scurvy, but I should be governed very much by the valuable report of this committee.

Now as to the discussion of milk. I, with very many members of this Society, took up very early the high sterilization of milk, and was very soon convinced of its impracticability in the vast majority of cases. Then I resorted to the low sterilization. I have tried both methods in the most adverse circumstances, that is in a hot city where the temperature is often 80° for days at a time. I have done this under the most favorable circumstances with a good corps of good assistants and I have found one method has yielded entirely satisfactory results. While we have cardinal principles to govern us in feeding infants, we must study each individual case and adapt the methods accordingly. I have sterilized the milk in the Foundling Hospital and in the Children's Hospital, and then I pasteurized the milk in both of them, and I got bad results in both. Then I pasteurized at 150° in both and have secured the best milk possible and in this way I have had the best results. In the past two months I have not had any deaths among sixty children. In private practice, in those cases in which I could get them upon a supply of milk from a dairy under the medical supervision of the Society of the District of Columbia, I did not resort to either method but to my own modification of the milk by siphoning off the cream or the upper part of the milk. In this way I have not since January seen a case of gastro-enteric disease in my own practice. So I think our own experience should guide us rather than that we should lay down that all milk should be sterilized or all pasteurized.

DR. CAILLÉ.—I wish to say one word in Dr. Freeman's favor. I was asked by the council to sit as confrère in this matter, but I declined. I think we are getting a little hysterical in the matter of temperature and we will settle down to a solid basis after a while. The antiseptic principle applied to infant food is one of the greatest advanced in the last half of this century. If the opinion should go out from this Society that sterilization is bad practice, it would be a large retrograde step. It would be all right if it were possible to have absolutely clean milk from the time it is received until it is consumed, but since this is impossible, I prefer the sterilizing process rather than pasteurization, because pasteurization is a double process, a heating and a cooling process, and is a complicated thing for the common people to do. For that reason I prefer the temperature of boiling water. In reply to what Dr. Buckingham has said I will only say that my conclusions in the scurvy discussion are based upon the study of all the 370 odd cases, and Dr. Buckingham's conclusions are not based upon those cases. He has simply heard the report read and has not studied it as I have. Therefore, I think he is the bolder man of the two in formulating his conclusions.

DR. JENNINGS.—I have nothing further to add. Dr. Morse expressed my views even better than I did, and I stand by that expression.

Dr. Griffith.—I want to say that Dr. Morse has expressed my views. We are disposed to reflect upon the observers we do not know and say that we do not know anything about them; we do not know whether their milk was properly prepared, etc. I have read through every report sent me, with the exception of the few last ones, which included principally Dr. Holt's batch which I thought it hardly worth while to review. You will be surprised to hear with what care those cases are reported by men we do not know. We say here "sterilization"; they say "sterilized at 212° for so long." It was impossible in the report to make all these classifications. At the same time the committee has taken particular pains not to vouch for the statements made. We do not know how many are accurate, of course, and so we only took the figures received, added them up and gave you the results. That only expresses the tabulation of these cases. In regard to Dr. Freeman's paper, I would like to express my own custom and belief about sterilization and pasteurization of milk. I do not believe that sterilization does the harm usually attributed to it. It has been the custom among many people for a long time to so-called scald the milk, which raised it to near the temperature of boiling water. I think we do find comparatively little harm from this. At the same time we should get as near as possible the mother's milk. The sterilized or pasteurized milk is simply a lesser evil. Any condition of this kind is an evil and the only question is whether the evil of omitting it is not greater than the evil of doing it. Certainly in my mind it is better to boil the milk thoroughly and long, if necessary, to insure clean milk. If you cannot do that I would prefer pasteurization, or better than that, raw milk.

Dr. Holt.—Most of us believe that at times pasteurization of the milk is absolutely necessary, especially among certain people at certain times; but here is a thing, from the report that may be dangerous and let us admit that. I have seen cases precisely like those reported in which there seemed to be no question about the preparation of the food, and the change from boiled milk or milk which was raw was the only step toward recovery. In my early cases I gave no fruit juice but only changed the food. It seems to me there are many things done in private practice that cannot be done outside. But that there is danger in the prolonged use of sterilized milk, it seems to me, is something we cannot escape if we believe these men have told the truth. It is a thing that will occur at times, and when a baby gets sore gums and sore legs we will know what is wrong.

Dr. Booker.—I would like to say that I believe in sterilization of the milk as a preventive measure and not as a food for the whole year. The proper time for using it is from June to October. In the cooler seasons, when we have tolerably pure milk, the raw milk is the best.

Dr. Freeman.—Dr. Booker referred to the difficulty of pasteurizing in poor practice where you cannot have the proper apparatus. It is perfectly practicable to pasteurize at 80° C. without any apparatus at all, if we will exert a little care, the milk being put on the stove and watched until a film forms on it. That is not true of diluted milk but of pure milk. That requires about fifteen or twenty minutes as a rule. It gives you some error perhaps in the way of over-heating rather than under-heating. In regard to Dr. Caillé's remark that one of the disadvantages is that you have to keep all milk cool afterwards, I think that is not true. In sterilization where pressure was used and the sterilization continued about twenty minutes, we found a growth of bacteria within a day.

ACTION OF THE SOCIETY.

On motion, the majority report was adopted by a vote of 18 to 1.

Proper Surgical Treatment of Tuberculous Bone Disease.—The summary of an article upon this subject by Horace Tracy Cabot is as follows: (1) Many observations prove that tuberculous diseases of the bones and joints is caused by the tubercle bacillus. (2) Injuries of moderate severity favor the production of the disease. (3) In the bones the disease begins in the epiphysis, and is more extensive than appears on gross examination. Hence, in operations for removal of the disease a considerable margin of apparently healthy bone must be removed. (4) Tuberculosis of the joints is generally, if not always, secondary to tuberculous disease in the epiphysis of an adjacent bone. (5) Abscess formation is due to extension of the tubercular process to the soft parts. The contents and wall of the tubercular abscess are different from those of infectious abscesses. Partial removal of the abscess wall is harmful. (6) Repair is caused by the formation of fibrous tissue, which replaces and partly encapsulates the tubercular tissue. Repair may be incomplete. Fibrous tissue may produce fibrous ankylosis, or the tissue may become ossified and lead to bony ankylosis. (7) Paraplegia in Pott's disease is rarely due to direct bony pressure. Usually the pressure is caused by tubercular peripachymeningitis. Rarely the pressure causes degeneration of the cord.—*American Journal of Obstetrics.*

SHOULD ALL MILK USED FOR INFANT FEEDING BE HEATED FOR THE PURPOSE OF KILLING GERMS? IF SO, AT WHAT TEMPERATURE AND HOW LONG CONTINUED?*

BY ROWLAND GODFREY FREEMAN, M.D.,
Pathologist to the Foundling Hospital; Pathologist to St. Mary's Free Hospital for Children, New York.

Although in this paper I will present no new facts, I hope to be able to make my remarks interesting by presenting to you a summary of the answers I have received to the questions I sent to the members of the Society relating to the heating of milk for the destruction of germs. I wish also to express my thanks to the members of the Society for their very courteous co-operation, which has made it possible to present this summary of the opinions of many of the most prominent pediatrists of the country. The questions I sent out were rather hurriedly drawn up and were not perhaps as definite in their meaning as they should have been, but in general the answers received gave evidence that they were understood as was intended.

I have received 37 answers, of which 34 were categorical and 3 in the form of letters. One of these letters gave details of a process used by the writer in which the milk was twice boiled, while two letters gave no details and were thus not suitable for this purpose.

In answer to the first question, "Do you consider that milk is rendered more digestible by sterilization or pasteurization?" the answers were: Yes, 3; a qualified yes, 1; no, 19; a qualified no, 4; while three thought it less digestible when sterilized and four more digestible when pasteurized. The great majority then consider that heating does not render the milk more digestible.

In answer to the second question, "Is sterilization or pasteurization to be advised for this purpose?" the answers are as follows: Yes, 1; qualified yes, 1; no, 21; qualified no, 1; pasteurization, 5.

The third question, "Would you recommend that milk should always be heated for this purpose?" was answered as follows: Yes, 3; qualified yes, 4; no, 25; qualified no, 1. It is thus evident that a very large proportion of these gentlemen believe that milk may be fed raw under certain conditions.

---

*Read before the American Pediatric Society, Cincinnati, June 2, 1898.

The fourth question, "If not always, when, if ever, is it imperative?" The answers may in general be grouped as follows: Always, 1; when not kept cold, or in summer, 17; in gastric or enteric disorders, 4; when dairy hygiene is questionable, 12; during epidemics of scarlet fever, measles, cholera, or typhoid fever, 1; when milk is old, 3; in cities, 7.

The fifth question, "Do you prefer pasteurization or sterilization?" brought the following answers: Pasteurization, 23; pasteurization under certain circumstances, 6; sterilization, 1. Including the letter mentioned before, we would have 2 preferring sterilization; one prefers pasteurization in private practice and sterilization in hospital work.

As to the temperature for pasteurization: 1, uses 140° for 15 minutes; 1, 150° for 30 minutes; 2, 155° for 30 minutes; 1, 155°-158° for 15 minutes; 3, 155°-163° for 15-30 minutes; 1, 160° for 20 minutes; 1, 160°-167° for 20-30 minutes; 1, 160°-170° for 35 minutes; 1, 160°-177° for 20-30 minutes; 1, 160°-170° for 35 minutes; 1, 165° for 35 minutes; 18, 167°, for intervals ranging from 6 to 35 minutes, the majority being from 20 to 30 minutes; 1, according to Walker-Gorden method.

The question concerning the duration of sterilization was answered by only 13 members, the time varying from 15 minutes to 1½ hours.

The last question, "Are there any practical disadvantages in heating milk for sterilization?" brought forth a variety of answers, as follows: Yes, 2; no, 2; less digestible, 7; sterilized milk less digestible, 3; less nourishing, 6; possibly a contributing factor in scurvy, 8; objectionable taste, 4; objectionable odor, 1; change in color of milk, 1; destroys emulsion, 1; cream not evenly mixed, 1; constipating 2; household sterilization unsatisfactory, 1.

These replies seem to show a remarkable unanimity of opinion of the members of the Society, throughout the country the predominating opinion being that raw milk would be the best food were it possible to obtain it clean, while a considerable number are evidently willing to take their chances with raw milk during certain seasons of the year and under certain conditions of dairy hygiene.

It was, therefore, surprising to me that more of the members had not made use of pasteurization at a temperature lower than 167° F. There seems ample evidence that 155° F. for 30 minutes (a temperature exposure which does not change the taste of milk) is sufficient, but only six of all the replies advocate this temperature. One answer, which coincides very nearly with my views, comes from Dr. Victor C. Vaughn of the University of Michigan, whose authority in such matters is widely recognized. This I will take the liberty to present in full:

"DEAR SIR:—I will answer your questions as follows:

1. I do not think that milk is rendered more digestible by sterilization or pasteurization.

2. Sterilization or pasteurization is not advised for the purpose of rendering milk more digestible.

3. If milk could be obtained from healthy animals under complete aseptic precautions, I do not think it would be necessary or desirable to have it heated before feeding it to children.

4. Practically, sterilization or pasteurization is imperative because milk is not obtained at all times from healthy cows, and very rarely, if ever, under aseptic precautions.

5. I prefer pasteurization to sterilization. Pasteurization should be carried out at a temperature of 155° to 158° F. When milk is heated to 160° F., it is so changed that a marked difference in taste is produced.

6. I think that a temperature of 155° to 158° F. maintained for fifteen minutes, is sufficiently active to kill toxicogenic germs that may be present, provided that the milk, after having been heated, be kept at a very low temperature. The keeping of milk at a low temperature after heating and before it is fed to the child, is, I think, absolutely necessary, because we know that even boiling does not destroy the spores of certain harmful germs in milk; but these spores do not develop at a low temperature, and there is reason for believing that these germs do not develop in the body.

7. If milk is sterilized, I think fifteen minutes long enough time.

8. There are practical disadvantages in heating milk for sterilization. Some of these practical disadvantages are inherent and others are accidental and avoidable."

It does not seem to me that our dairy hygiene even under the best circumstances, has reached a point where it can produce a raw milk which is an absolutely safe food. Cow's milk must be obtained by pressure on the teats of a cow, and these teats hang beneath an udder which is covered with hair, and from the belly of the cow which is also covered with the same hair-covered hide. Moreover, this portion of the cow is particularly liable to be soiled with dirt as it comes in contact with the ground when the cow lies down. Its hairy covering, moreover, holds the dirt, which is gradually shaken out by friction. If the cow has loose fecal movements these run down the inner surface of the thighs and the posterior portion of the udder. The contamination dries on the udder in the air, and during milking is apt to fall as dust into the pail. Moreover, the milk ducts of the cow may contain many bacteria, although usually contamination from this source is not great. In some cases, however, it is considerable, and then it is not always eliminated by throwing away the milk from the first few squeezes of the teat. I have found it present in the milk forced out by even the fortieth squeeze. Milk thus may become contaminated in the milk ducts, and at any rate has to be obtained from a bad immediate environment. Many efforts are being made to minimize these dangers, but with the best methods now used they still exist to a considerable extent.

But this is not all. The milkman's hands are almost never clean and of necessity hardly can be. The milkman must labor hard with his hands all day, causing a thick, rough callous which is difficult to clean, if an effort to clean them is made. His hands are employed in handling manure, and in attending to many duties involving contamination. Occasionally they are used during the day in waiting on some one sick with a contagious disease, and when such is the case, the consumers of the milk are apt to suffer. If wet milking is used, the milkman's hands are practically washed over the milk pail.

We have here again in the milkman a danger to the milk which cannot yet be eliminated, and even with great care on the part of dairy superintendent it will be difficult to entirely do away with these dangers.

Epidemics due to milk have originated from a mild unrecognized case of typhoid in a milkman, also from a beginning diphtheria in a milkman. Such sources of danger may exist in very carefully conducted dairies, although the liability to them is much diminished.

It has seemed to me worth while to go over these dangers to milk and to consider the difficulties in eliminating them in connection with the matter of heating milk, to show how difficult this problem of obtaining clean milk really is.

The original contamination of milk up to the time of bottling in well-conducted dairies where great efforts are made to obtain clean milk, rarely amounts to less than five thousand bacteria in each c.c. By the time such milk reaches the consumer, the contamination is still greater, and if, as is usual, the milk is used during the twenty-four hours following delivery, it is apt to be very considerable before a fresh supply arrives, and is probably as a rule something between fifty thousand and five millions a c.c., or is roughly between three thousand and three hundred thousand a drop. These bacteria are for the most part air bacteria, but they may be putrefactive bacteria, or toxin producing bacteria, or pathogenic bacteria, and thus may produce in the infant that is fed on the milk a gastro-enteritis or acute poisoning, or the infectious disease of which the special organism present is the cause. Many instances representing each of these classes of illnesses due to milk have been reported.

Does it seem right in view of what we know of the bacteriology of mother's milk to give such contaminated milk raw to infants?

It has seemed to me that although fresh uncooked milk is the ideal and rational form for infant feeding, the practical impossibility of obtaining cow's milk clean has rendered some form of sterilization necessary. It does not seem fair to put into an infant's stomach a food containing thousands of bacteria in each drop, these bacteria being of unknown quality and very possibly of dangerous and pathogenic nature.

For the present then some sort of sterilization, it seems to me, must be used. High temperature sterilization causes certain chemical changes in milk. The change in the taste of milk occurs at 70° C. (158° F.) and the changes found by chemists begin with a temperature of about 80° C. (176° F.) Clinically it has been observed that children fed on milk heated to a boiling temperature do not thrive as those fed on raw milk, and also that this bottled food seems to be a predisposing cause of scurvy. On this account then it would seem that the lowest temperature which is efficient should be used for sterilizing. Moreover, a lower temperature continued for a long time is as sufficient in its bactericidal action as a much higher temperature for a very short period. We should then use a temperature for heating which is the lowest which, when continued for a considerable time, will destroy with certainty all those pathogenic bacteria most feared in milk, as well as the bulk of the bacteria present.

As I stated before this Society two years ago, I believe that on the considerations just mentioned, 68° C. (155° F.) for thirty minutes, followed by rapid cooling, is the best temperature exposure. Such a temperature will destroy the germs of diphtheria, typhoid fever and tuberculosis, and so many of the other germs present that a plate planted from milk so treated and kept at a laboratory temperature will usually show no growth in twenty-four hours. At the same time this milk has not been heated sufficiently to give it a "cooked milk" taste or to change its taste at all, and the temperature to which it has been exposed is more than ten degrees centigrade below that at which the chemical changes in milk due to heating are said to take place. It is, however, evident that pasteurization at this temperature has been as yet but little used. I would urge on those gentlemen who have used a temperature of about 167° F., and who are inclined to favor raw milk, to try first pasteurization at this lower temperature. In using this temperature, care must be exercised that approximately this temperature is sustained for half an hour, and equally that the milk is immediately and rapidly cooled and kept cool. Raw milk, I believe, cannot yet be considered a safe food.

205 WEST FIFTY-SEVENTH STREET.

[For discussion on this paper see page 500].

Intrauterine Infection with Measles.—A. Bartsch (*Ugeskrift for Laeger*, No. 48, 1896) refers to the general belief that newborn infants are seldom affected with measles, and reports a case in which it must have been acquired *in utero*. The infant was born on the day when the mother exhibited the morbillary rash, and at the time of birth had nasal catarrh, conjunctivitis, and cough. When three days old the eruption was out over the whole body, the temperature was raised, and the whole clinical picture of measles was presented. They ran a tolerably mild course, and ended in recovery after the lapse of six days.—*British Medical Journal.*

SYPHILIS HÆMORRHAGICA NEONATORUM, WITH ERUPTION OF THE VARICELLAR TYPE.

BY WILLIAM S. GOTTHEIL, M.D.,
Professor of Dermatology, New York School of Clinical Medicine;
Dermatologist to the Lebanon Hospital, the German West-Side, and the North-Western Dispensaries,
New York.

(*Concluded from page 432.*)

The physical characters of the general eruption were those of a varicella; and, as I have already stated, that it was a hæmorrhagic form of that disease occurring in conjunction with hæmophilia was the opinion that I was inclined to adopt on the occasion when I first saw the case. For the varicella eruption is one of the most characteristic and uniform with which we have to deal. Variations from the established type rarely occur. The commonest one is that in which the lesions become gangrenous. Cases of varicella gangrenosa have been recorded by Eustace Smith, Augier, Variot and Danseux (with pemphigoid lesions); Hutchinson, Hayward (death on the eleventh day with pyæmic abscesses of the lungs); Crocker (death with pyæmic symptoms); Demme (bloody diarrhœa and vomit); Sherwell (death from internal hæmorrhage); Büchler, Lockwood and others. M. F. Schwartz has noted one case of varicella complicated with purpuric lesions, in which death occurred from subdural hæmorrhage and oedema of the glottis.

The records of a distinct hæmorrhagic eruption in varicella that I have been able to find are but very few. J. T. Whittaker* says that it is occasionally seen as a complication in septic cases. Galliard†, speaking of the complications of varicella, says: "In some cases a hæmorrhagic diathesis sets in, with petechiæ and hæmaturia; but the varicellæ themselves rarely become hæmorrhagic." Herman Bock‡ records two cases. The first was that of a boy three weeks old, in which blood-filled vesicles appeared on the body, ruptured, and caused a hæmorrhage that drained the child's life away. The second was that of a male twin, two and one-half years old, who had never shown any hæmophilic tendencies until attacked with a varicella that immediately followed a scarlet fever. The varicella vesicles became hæmorrhagic; extensive extravasations occurred in various parts of the body, and especially in the tissue of the scrotum, part of which sloughed away. Tordens* has noted hæmorrhagic varicella occurring in a child of thirteen months as a secondary affection during convalescence from a severe broncho-pneumonia, and ending fatally. John Thompson's case† showed hæmorrhagic pemphigoid bullæ so extensive that the eruption covered, for instance, one-third of the area of the back, and was probably not a case of varicella at all.

---

*Pepper's American Text-book of the Theory and Practice of Medicine, Vol. i., p. 301.

†Le Mèdicine Moderne, 1894, No. 4.

‡Deutsche Medicinal-Zeitung, July 11, 1889.

It is apparent that there are many points that militate against a diagnosis of varicella in the case under consideration, in spite of the resemblance of the lesions to those of that disease. The age at which it appeared, when the child was seven days old, is certainly against it; nor does it allow a sufficient length of time for the period of incubation, if the infection was *post partum*. An *ante-partum* infection seems hardly possible, and I have not been able to find any records of such cases. More important arguments against the diagnosis, however, are to be found in the mode of appearence of the eruption, and in its course after it was fully developed. It came out all at once, not gradually, so that the vesicles were all of the same age; the lesions attained their full development in a day or so; and they remained practically unchanged, save for a very slight shrinkage in size, for four weeks.

In spite of the amplitude of the literature of hæmophilia, there is but little said of its relationships to the exanthematous eruptions in general, and to varicella in particular. Unna‡ mentions hæmorrhagic smallpox, scarlet fever, and measles as occurring in hæmophilia, but not chickenpox. Eustace Smith‖ says: "Hæmophilia does not influence unfavorably the exanthemata of children. Measles and scarlet run normal courses . . ."

Horowitz§ describes a syphilis occurring in a young hæmophilic woman, during the course of which there occurred hæmorrhages from the nose, uterus, and intestines, but in which the characteristic papular eruption was not hæmorrhagic. Without going into considerations which would lead me too far afield, it seems certain that one factor at least in the production of the symptoms of hæmophilia is grave disease of the vascular walls. Of the various possible causes of such disease, one of the commonist is undoubtedly syphilis; and, although the real cause of hæmophilia is still a matter of dispute, and its relationship to septic and infective processes is still obscure, the opinion is gaining ground that in certain cases, at least, it has an intimate connection with the luetic infection.

---

*Monatshefte für Praktische Dermatologie, Vol. xx., No. 7, April 1, 1895.

†Archives of Pediatrics, March, 1894.

‡Monatshefte für Praktische Dermatologie, Vol. x., 1890, p. 331.

‖Practical Treatise on Diseases of Children, 1884.

§Vierteljahresschrift für Dermatologie und Syphilis, 1886.

That the case under consideration is not one of ordinary hæmophilia is evident, I think, from the history. Hæmophilia is the most markedly hereditary of all disease conditions of the blood-vascular system, and its symptoms are so evident and dangerous that they are noticed and remembered even by the most ignorant people. Moreover, it is a condition for whose presence in a family there are no reasons for concealment; it being, on the contrary, evident to the dullest understanding that it is of vital importance that the phyaician should know of its presence. There was certainly no hæmophilia in the R. family; nor could the most careful questioning elicit any history of its existence in any relatives. Over and above all this, the entire history of the case impresses one with the idea that the hæmorrhages were caused by the same factor that was responsible for the eruption and the lethal termination. Hæmophilia, after all, is only an aggregation of symptoms, pointing in some cases to known and in others to still unascertained underlying disease conditions. It is defective knowledge alone that compels us to treat of all these cases as a disease entity under the hæmophilic title.

Cutaneous and other hæmorrhages occurring in new-born infants were first referred to syphilis as a causative factor by Behrend* in 1878, when he elaborated the idea of syphilis hæmorrhagica neonatorum; and similar cases were soon thereafter reported by Deahna†, Weiss‡, Andronico‖, de Luca§ and others. It was the elaborate paper of Mraçek¶, however, read before the Fifty-ninth Naturforschersammlung in 1886, that established it as a well-defined form of luetic disease. The previously recorded cases had all been more or less open to doubt, and opinions were divided as to whether syphilis or sepsis was at the bottom of these multiple hæmorrhages in new-born infants. Mraçek carefully examined nineteen cases of hæmorrhage occurring at birth, in all of which the mothers were severely affected with syphilitic disease. Neither the maternal nor the infant mortality was excessive during parturition; but ten of the children died within one hour after delivery, and none of them lived over forty-eight hours. All the children had multiple blood effusions in the skin, and most of them had internal hæmorrhages as well. All showed characteristic vascular changes, with syphilitic lesions of the liver, bones, and other organs. The essential lesion of the vessels was an arteritis, accompanied either by rupture or hæmorrhage per diapedesis. In a later communication Mraçek* reports the results of the examination of the records of one hundred and thirty-two cases of early dying syphilitic children, and found that forty-two of them had hæmorrhages of the skin or the internal organs.

---

*Deutsche Zeitschrift für Praktische Medizin, 1878, Nos. 25 and 26.

†Wurtemburger Correspondenzblatt, Vol. lxix, No. 40, 1879.

‡Prager Vierteljahresschrift, 1879.

‖Arch. di Patolog. Infantili, An. iv., Fasc. 4.

§Arch. di Patolog. Infantili, An. iv., Fasc. 4.

¶Monatshefte für Praktische Dermatologie, Vol. v., p. 508.

Many other cases have since been recorded. Hartmann and Pignot† showed that there occurred in these cases of hæmorrhagic hereditary syphilis either an ordinary purpuric eruption, or a specific purpuric eruption, or, finally, that other skin lesions already present, as roseola or papules, took on a hæmorrhagic character. In W. E. Conroy's case‡, violent bleeding occurred from hæmorrhagic vesicles all over the body that appeared on the third day after birth. There were also hæmorrhages from the right ear, stomach, vagina, bladder, rectum, nose and conjunctiva, ending in death upon the sixth day. Moritz Cohn's case‖ showed petechiæ, blebs upon the tongue and hands, umbilical hæmorrhage, and hæmatemesis. William Courcy§ has reported a case in which a pustular eruption appeared upon the face, head and shoulders fifty-five hours after birth, and rapidly became hæmorrhagic. Then there occurred bloody discharges from the ears, vagina, intestines, and stomach, and death. Fischl and Pavlow* both believe in the dependence of the hæmorrhagic diathesis upon syphilitic infection, and Courtois and Swift† record two cases of paroxysmal hæmoglobinuria in syphilitic children.

---

*Obid., Vol. vi., 1887, p. 372.

†Annales de Dermatologie et de Syphilographie, T., vii., No. 1, 1886.

‡New York Medical Journal, April 24, 1894.

‖Monatshefte für Praktische Dermatologie, Vol. xxi., 1895, No. 5.

§New York Medical Journal, 1894, p. 498.

The diagnosis of syphilis hæmorrhagica neonatorum seems to be the only one that can be made, though there are certain facts in the history that militate against it. I attach very little importance to the absence of any history or of the stigmata of syphilis in the parents. The reasons for the concealment of a luetic history are self evident; and the absence of signs of past lesions may be accidental or the result of appropriate treatment in the past. The four normal pregnancies, the four healthy children and the absence of miscarriages are important points; but the first and last of these are merely statements on the patient's part, and must not be given undue weight. Two points only of importance are opposed to the diagnosis. In most of the recorded cases the mothers are manifestly suffering from a severe type of the syphilitic disease at the time of delivery; here there was no evidence of its existence. The children have almost always died within a very few days, the longest term of life that I can find recorded in an undoubted case being one week; this child lived for five weeks. Neither of these points, however, are of sufficient importance to invalidate the diagnosis. Syphilis in the female is not infrequently accompanied by few and not very definite symptoms, and the mother may have been at the time in one of the not infrequent intervals of quiescence that mark the disease. The mere fact that the child lived longer than the other cases that have chanced to be recorded may be quite accidental.

Cases of hæmorrhagic syphilis of the new-born are still rare enough to render each one of them of interest. It is quite possible that more careful and extended observation may refer a large proportion of the cases of otherwise inexplicable hæmorrhage in infants to the luetic disease.

144 WEST FORTY-EIGHTH STREET.

---

*Monatshefte für Praktische Dermatologie, Vol. xxii., No. 4, February 15, 1896.

†La Medicine Moderne, No. 18, 1895.

CLINICAL EXPERIENCE WITH ANTI-STREPTOCOCCUS SERUM.*

BY LOUIS FISCHER, M.D.

New York.

When the treatment of diphtheria with antitoxin became generalized, great hopes were entertained by the profession upon the announcement of a similar discovery with Marmorek's anti-streptococcus serum.

This announcement came from the Pasteur Institute at Paris. It was first recommended as a specific in the treatment of all diseases caused by the streptococcus, and therefore was urged as a specific in the treatment of scarlet fever. It was furthermore recommended as a specific in erysipelas, and also in the treatment of puerperal septicæmia. In fact, all septic conditions caused by *post-mortem* wounds were to be similarly treated. Thus, we have had occasion to see what this serum can accomplish.

My first experience with this Marmorek's serum I owe to the courtesy of Prof. A. Baginsky. It was in the summer of 1896 that I watched with great interest a series of cases of scarlet fever treated by the anti-streptococcus serum in the Scarlet Fever Pavilion, which is part of the Kaiser and Kaiser Frederich Children's Hospital at Berlin.

The treatment pursued consisted in subjecting a series of cases of mild, severe, and malignant scarlet fever to the therapeutic influence of this serum, and by noting the results night and day. Owing to the large number of assistants at the disposal of Prof. Baginsky, in addition to the laboratory facilities, all details were handled in a masterly manner. Some cases received injections of 10-20, and some as much as 70-80 c.c. during each treatment.

Recognizing the value of Prof. Baginsky's advice in the treatment of diphtheria, I naturally was anxious to note his results in the treatment by this new therapeutic agent. He cautioned me not to use the serum for the present, and said to me that it is not a specific in the treatment of scarlet fever, in the sense that antitoxin is advised in the specific treatment of diphtheria.

In his text-book on Diseases of Children, fifth edition, published in Berlin, 1896, in his article on scarlet fever, page 151, speaking of Marmorek's anti-streptococcus serum, he distinctly says that "he believes that it does no harm."

---

*Read before the Section on Pediatrics, New York Academy of Medicine, May 12, 1898.

This is now the second year since I have tried the value of this anti-streptococcus serum in various diseases.

SCARLET FEVER.—A. Z., three and a half years of age, had been sick with scarlet fever for about one week, when we took charge of the case on April 13, 1897. When the child was first seen, it had a temperature of 102.5°; pulse, 140, soft, weak, and intermittent. The mouth and pharynx were filled with dry, greyish, fetid membranes. There was a purulent nasal discharge, an excoriation around the alæ nasi, besides a mild bronchitis. The child was extremely constipated, had anorexia, was intensely thirsty. There had been a history of previous vomiting. The child was extremely restless, and the face showed a decided condition of sepsis, being pale, eyes sunken, nose pointed, furrows round the eyes deeply marked, and a sickening odor emanated from the child's body. The child was put on calomel powders, which produced some very vile-smelling evacuations. Large quantities of brandy and milk and seltzer were also given, and diffusible stimulants, like carbonate of ammonia, were ordered. As the temperature rose, and there was evidence of delirium, cooling baths were ordered, which seemed to have a tonic effect.

On the 17th, the child received an injection of 10 c.c. of anti-streptococcus serum, and noticing no distinct change in the child's condition, the same dose was repeated on the 24th. The child showed no signs of improvement; the temperature was somewhat reduced, but the general condition was certainly not improved.

On the 30th, *exitus lethalis.*

The above case was attended by Emil Joel, M.D., from whom I received the above report, and was seen by me several times with him.

Another equally interesting case is the following:

C. G., female, six years old, and seen by me on October 17, 1897. The mother told me that the child had been vomiting, and it had some diarrhœa, the latter caused by a cathartic that she had given. The child was covered with a rash, but had, according to the mother's history, been well until yesterday. She complained of headache and slight pain in the throat. Inquiry elicited the fact that a child in the same house had had scarlet fever several weeks ago, and that this patient under consideration had been exposed before the character of the disease was defined. Physical examination showed a poor-nourished child, pigeon-breasted, rachitic head and limbs, an otitis purulenta dextra, which the mother told me had existed for the last year since the child's attack of measles. The eruption covered the chest and limbs, and was not plain on the back nor on the face. The pharynx and fauces were congested, but showed no patches; the tongue was slightly coated, but did not show the characteristic strawberry appearance usually found in these cases. The temperature was 104° in the rectum at 9 A.M.; pulse, 138. The urine, according to the mother's history, was passed freely. The diagnosis of scarlet fever had been made.

I requested permission to use the anti-streptococcus serum. The child received 10 c.c. on the evening of the same day, which was injected subcutaneously between the shoulder blades about 5 P.M. The temperature at the time of the injection was 105.2° in the rectum; pulse, 156. At 9 P.M. the temperature was 105° in the rectum; pulse, 150. The child was still nauseated and intensely thirsty.

The following morning, at 9 A.M. (October 18th), the temperature was 104°; pulse, 124: general condition the same, with the exception of diarrhœa, which had subsided, the child having been put on a rice, barley, and white of egg diet; no stimulants had been given. On the evening of the same day, at 6 P.M., the temperature rose to 104.8°; pulse 146; no delirium; no evidence of sepsis.

October 19th, 9 A.M., the child's condition seemed the same; eruption was more defined, covering the face, back, extremities, and abdomen. The temperature in the evening again rose to 104.6°.

October 20th, the child's condition is bright; temperature, 103.4°; pulse, 124; the throat intensely congested; two small necrotic patches can be seen on the left tonsil, a culture on blood serum showed staphylococci and streptococci.

October 21st, 9 A.M., the temperature being still 102.6°, another injection of 10 c.c. of serum was given. I left my thermometer with instructions to take temperature. Two hours later (at 11 A.M.), I saw her; the temperature remained 102.6°. On the evening of the same day, I saw the child again, the temperature was 104°; pulse, 134.

October 22d, temperature in the morning, 101.3°; pulse, 118; 6 P.M., same day, temperature was 102.6°; pulse, 102.

October 23d, temperature 9 A.M., 101°; pulse, 98; 6 P.M., 100.6°; pulse, 90.

October 24th, 9 A.M., temperature, 100.4°; pulse, 94; 6 P.M., 99.4°; pulse, 96.

THE ERUPTION.—During the course of the disease, the eruption seemed to gradually spread, and remained at its height covering the whole body for three days, from the 19th until the 22d. It then began to fade, and on the 25th appeared like small erythematous patches scattered over isolated areas of the body. It seemed to me that in this case the eruption was not influenced by the injections used. The urine showed slight traces of albumen during the first week of the disease. During the second week the urine contained two pro mille of albumen, but showed no casts.

The child desquamated profusely; post-scarlatinal nephritis continued for some time, with œdema of face, feet, and hands. The urine was not very scanty, however.

The child received some iron and decoction of cinchona bark, and made an uneventful recovery.

In the London *Lancet*, March 19, 1896, Harold Low reports a case of scarlet fever complicated with acute suppurative otitis media, and acute hemorrhagic septicemia treated by anti-streptococcus serum.

Low reports a case of scarlet fever in which, on the fourth day, pain in the ear developed, followed within twenty-four hours by a discharge. Two days later there was evidence of mastoid suppuration, and when the antrum was opened a considerable amount of pus was discharged. This was followed by drowsiness, irregular temperature, and some jaundice. A diagnosis of septicemia was made, and injections of anti-streptococcus serum were at once commenced. The patient's condition for a time grew worse, then improved, the jaundice disappeared, and finally recovery ensued. Before this was complete, however, the patient had several attacks of epistaxis and a severe purpuric eruption. A bouillon-culture of the blood, made before the commencement of the treatment, showed the presence of the streptococcus. Altogether 263 c.c. of serum were used.

In a series of fifty-seven cases published by Prof. A. Baginsky, in the Berlin *Clin. Weekly* of 1896, No. 16, nine cases must be excluded, as the treatment was not satisfactory, having been discontinued or otherwise; the other forty-eight cases are divided into several groups.

In twenty-seven of these cases, the result was an exceptionally good one. In these twenty-seven there were no complications encountered. In four of these latter cases, after the injections of the serum, there appeared a mild form of nephritis. In another case a suppurating form of otitis, and two other cases showed a severe angina, and a severe painful glandular swelling.

A point worth noting was the fact that after the injections, and within the next two or three days following, the temperature was suddenly reduced. The angina encountered terminated favorably in all of his series.

Albuminuria was met but rarely, and in only one case could nephritis be suspected.

The author warns against accepting too hasty deductions from his reported experiences with severe forms of nephritis, because he has found that these latter conditions occur less often in hospital practice than in his private cases. This he attributes to a strict milk diet, and better hygienic conditions.

In another group of seven cases, the author reports the lethal ending of the same, owing to various complications. The author believes that the serum might have been used in a much larger dose, and that possibly some benefit could have been deprived from the same.

In another series of cases, in spite of a large number of injections, and a sufficient quantity of the same, there was no appreciable benefit, although all cases recovered.

In the other seven cases, severe complications ensued, and the author believes he did not have enough of the remedy to give it in proper doses.

In five other cases, the serum was used to modify special complications. In one of these cases it did not seem to have any influence, and the child died. The four others recovered.

The mortality was 14.6 per cent. The mortality in the hospital has ranged in the last year from 22.6 per cent. to 34.3 per cent.

The author refers to the fact that the scarlet fever mortality is subject to periodical changes, and, therefore, does not show positive deductions to be drawn from the above quoted figures.

He does not, however, find the course of children treated with serum any worse than otherwise. The after-affects were in no wise different from those noticed during the treatment of diphtheria with antitoxin. He still continues the use of the same Marmorek's serum.

In the *Medical Record*, March 14, 1896, Dr. Berg, speaking of the treatment of pneumonia as a complication of diphtheria, describes at length the anti-steptococcus serum, and its application to the various diseases known to be caused by these microorganisms.

Dr. Alexander Marmorek (Annales de Pasteur, July, 1895), states the belief that different forms of streptococci are varieties of a single microbe. Thus, Marmorek believes that Fehleisen's erysipelas streptococcus cannot only produce erysipelas, but when sufficiently virulent, can produce meningitis, pneumonia, abscess, septicæmia. It certainly depends upon the point of entry into the body, as to what disease shall be produced, plus the degree of virulence contained in this streptococcus.

Berg, describing the method of producing the anti-streptococcus serum, states that the ideal serum will be that obtained from animals immunized against streptococci infinitely more virulent than any to the action of which man can by any possibility become subject.

We have thus far succeeded in producing an anti-streptococcus serum, but not a streptococcus antitoxin, the animals having been immunized against the streptococcus germ, and not against the toxin produced by the streptococcus.

The attempt has been made to immunize horses to the toxin produced by the streptococcus, but it is very difficult to obtain a toxin sufficiently virulent to be of any use in immunizing horses.

At the time of publishing his article, Berg stated that the New York Health Department was engaged in the production of an anti-streptococcus serum, and does not, therefore, report any clinical results with the same. I have learned, however, that since that time, Dr. J. Winters Brannan and Dr. Berg have used this serum at the Willard Parker Hospital.

The following three cases I owe to the courtsey of Dr. Sig. Cohn, the first of which I had the pleasure of seeing with him once.

A child, Rosy, four years old, was sick three to four days prior to Dr. Cohn's first visit. When he first examined the child he found a decided case of scarlet fever and angina necrotica.

Culture from this case sent to the New York Health Department showed K.L.B. and streptococci. At the request of Dr. Cohn, the Inspector of the Health Department injected the child with antitoxin; quantity unknown.

The temperature ranged from 104° to 105°. The throat symptoms increased, and as the child's general condition did not improve, the doctor decided to try an injection of 10 c.c. of anti-streptococcus serum.

At this time I saw the child with Dr. Cohn. We secured a nurse, and irrigated the nose with a solution of boracic acid. The child's temperature went down to 101° between two to three days after the injection of anti-streptococcus serum. Several days later the child again grew worse, the temperature went higher, and Dr. Cohn gave another injection of 8 c.c. of anti-streptococcus serum. This was followed by no improvement.

After the scarlatinal eruption faded, a new eruption resembling measles, appeared three days following the second injection of anti-streptococcus serum. The urine, which was carefully examined, did not show any traces of albumen nor casts. The child died of heart failure and collapse.

The second child in this family was five years old; showed an eruption of scarlet fever and angina necrotica, also received an injection from the New York Health Department of diphtheria antitoxin. As there was no improvement following this injection, the child was also injected with 10 c.c. of Marmorek's anti-streptococcus serum. This was followed by no reaction, nor any decided improvement directly attributable to the serum. This child recovered.

The third child, a baby one year old, had a very mild scarlatinal eruption; did not show any angina. In fact, the throat appeared normal. This child was not injected with anti-streptococcus serum, and the case recovered very easily with no complications, and no sequela. These children were attended about three months ago.

A case of erysipelas attended by Dr. Sig. Cohn, and which was not seen by me, was between three to four years old. It was sick but a short time before the doctor's first visit. The little patient had a typical erysipelas flush on the lower extremities; this gradually extended to the abdomen, and then to the back. The doctor used lead and opium wash externally, followed later by an ointment of ichthyol. Not finding any improvement, and finding that the erysipelas had spread alarmingly, the temperature at this time being 104°, the doctor injected at 6 P.M., 8 c.c. of anti-streptococcus serum.

The following morning the temperature was normal; the erysipelas faded and gradually subsided. No other treatment was used, and the child recovered very rapidly.

Schenk (*Central Blatt für Bacteriologie*, page 170, Band xxiii., Part III.), treated in the State Institute, and reported in the Vienna *Klin. Wochen*, 28th of October, 1898, four animals (three horses and one mule), according to Marmorek. They received increased doses of streptococcus serum. The animals had previously received injections of diphtheria toxin. The animals all tolerated the poison well, and were able to withstand the poisonous effects of living cultures.

One animal withstood 200 c.c. without any after-effects. After ten months' treatment, the serum of these animals was tested for their therapeutic value.

Sixty rabbits were injected with 0.1-5 c.c.m., and twenty hours later injected with one hundred times the usual poisonous dose of toxin.

Although the animals so previously injected showed a similar mortality, 36 per cent. against 11 per cent. of controlled animals, still this author could not arrive at any positive deductions from the amount of poison injected or the amount of prophylactic serum used to control or neutralize the poison.

His results are the same as those of Petruschky, and questions the value of the serum made according to the method of Marmorek. Still poorer were the healing results with this same serum, for out of twenty-one rabbits thus treated, nineteen died.

The following case of a baby, K., one year old, female, was feverish and restless for about two days, when Dr. Aronson was called. According to the family the doctor did not make a diagnosis, as the disease was not properly developed.

On the third day of the child's illness, Dr. Berger was called and diagnosed the case as erysipelas. On the fourth day of the disease the child grew worse. The disease spread very rapidly, and there was a marked rise in the temperature. The doctor had used ichthyol ointment locally with no apparent benefit.

On the fifth day of the child's illness, Dr. Henry M. Groehl was called in, and found a very well marked case of erysipelas, involving the both lower extremities, and spread from there to the back, covering the same, and over the abdomen. The temperature at the time of his first visit was 104.2°; the child was very restless. He ordered locally lead and opium wash to cool the surface, and internally he gave calomel and phenacetine with sparteine.

The following day, the sixth day of the child's illness, Dr. Groehl found the child much improved. The mother stated that it had rested well; the child would sit up and play. The temperature had fallen to 99°; the pulse was good.

The erysipelas flush was not spreading; the color was not so red, and some areas of the skin had lost the hard and elevated thickened induration. The child was in every way greatly improved, and was nursed by its mother, taking the breast with evident relish.

The seventh day of the child's illness, there was a marked change for the worse. The temperature still remaining at 99°; the pulse was rapid and feeble; there was continuous vomiting. The inflammation had suddenly spread from the abdomen to the chest, almost completely covering the child. The child's appearance was decidedly septic. The child vomited long after all drinks; the mouth had been stopped. In fact, long after rectal feeding had been commenced, the vomiting persisted.

On the eighth day of the child's illness, Dr. Louis Fischer was called in consultation, and after going over the history of the case and the treatment pursued, recommended injections of 10 c.c. of anti-streptococcus serum. This was injected in the usual aseptic manner, just as we inject antitoxin, on the morning of the eighth day of the child's illness. On the evening of the same day that the injection was given there was no reaction. The child continued the same.

The following day, about three hours before the *exitus lethalis*, the body was covered with ecchymotic spots. The various parts of the body were covered with discolorations; some of them resembled the colors of the rainbow.

Two very instructive cases are the following:

A child seven years old, complained of nausea and vomiting quite freely. The mother, believing the child had a disordered stomach, gave her some citrate of magnesia, which had quite a marked laxative effect.

The following day the child complained of intense headache, and being very feverish and thirsty, was put to bed, and a physician sent for. On examining the child he found the body covered with a distinct scarlatinal eruption. He ordered spir. mindereri; a teaspoonful every two hours, and a liquid diet. The next day he injected 10 c.c. of anti-streptococcus serum. The temperature was between 103° and 104°; the exact measurement not noted.

The next day, finding the child's headache still persisted, and the general condition not improved, he again injected 10 c.c., and continued to inject every day for seven successive days 10 c.c., until 70 c.c. had been used.

The temperature ranged from 105° to 106° in the evening during the second week of the child's illness, and from 103° to 104° every morning.

When I saw the child, at the request of the family, I found a condition of general furunculosis on the back, and in the axillæ on the shoulders, over the left patella. The family objected most strenuously to incising the furunculosis, and thus these furuncles were allowed to open spontaneously.

The urine was very turbid, high colored and loaded with albumen. On boiling the same it almost coagulated in the test tubes. There were also casts found on microscopic examination. The child suffered from a continuous diarrhœa, which bismuth and injections of laudanum with starch would not control. The throat showed small areas of necrotic scarlatinal pseudo membrane, and there was quite some discharge from the nose. There was also a purulent ophthalmia, the eyes being glued together when the child dozed. There was a constant stupor, and the child seemed to be drowsy. The nose was pinched; there was an intense thirst all the time, and continuous cough, which had appeared when I first saw the child, and which we first thought resembled pertussis, proved later, on careful physical examination to be an empyema. The child died in a condition of most profound sepsis several days after the aspiration of the purulent effusion.

The family objected to the operation of empyema. During the course of this child's treatment, an older child (nine years) which had been exposed and was now isolated, contracted the disease, the mother calling our attention to the persistent vomiting and sore throat. In this case I used quite some diplomacy in order to convince the attendant that I did not believe anti-streptococcus serum could do any good. In fact I advised him that if he would again inject the second child, that I would withdraw from the case. As the family insisted on my continuing to attend the child with the attending physician, we used carbolated vaseline inunction, and the usual expectant plan of treatment, treating symptoms as they arose, giving an iron and glycerine gargle, and although this child suffered with a nephritis for six weeks, it made an uneventful recovery.

In an elaborate paper on pneumonia complicating diphtheria, H. W. Berg (*Medical Record*, March 14, 1896), suggests the practicability of using anti-streptococcus serum in this disease.

W. H. Park (The W. M. Carpenter Lecture, 1897), states that the rapid deterioration of serum in vials may account for the absence of curative powers in the serum. He further says, that the preparations of anti-streptococcus serum now on the market are either quite weak or entirely wanting in curative substances.

Van de Belde, (*Pediatrics,* Vol. 4, Nos. 9 and 10, 1897, *Arch. de Med. Exper.*) studied the question as to the protective value of the anti-streptococcus serum prepared from one variety of streptococcus, and to see whether it was equally protective against other streptococci. Selecting two varieties, one obtained from a sore throat, the other from a case of puerperal septicæmia, he tested the effects of their respective sera. His conclusions were, that the serum of one variety was only curative against that same variety of streptococcus. Thus, a serum made from a streptococcus in puerperal septicæmia was only protective against this same disease.

Steele (*British Med. Journal,* Oct. 3, 1897), reports twenty-six cases of puerperal septicæmia where serum was used. There were sixteen recoveries; ten died. He says there are so many other causes for transatory rise of temperature during the puerperium besides streptococcus infection, that in case the serum is given early, and a rapid recovery ensues, we remain in doubt as to whether the disease was a true streptococcic infection. It is important to examine the uterine discharge, for the presence of the streptococcus.

Huber and Blumenthal (*Berlin Clin. Weekly*), have experimented with the blood of persons convalescing from scarlet fever, pneumonia, measles and erysipelas. The blood was drawn from vein of elbow, and the serum mixed with an equal amount of physiological salt solution and one per cent. of chloroform added. The mixture was passed twice through a Beckfield filter. This serum was used in thirteen cases of scarlet fever, nine measles, fourteen pneumonia and ten of erysipelas. The author claims that it mitigated all, but did not hasten defervescence in pneumonia.

The Central-Blatt für Gynaekologie, (Sept. 25, 1897), quotes Wallick, paper read in Inter. Congress in Moscow. He says, the mortality has not been essentially changed by the methodical use of Marmorek, and there is no reason to adopt it in place of the customary methods of treatment for puerperal infection. In the discussion of this paper the opinion prevailed that anti-streptococcus serum cannot be recommended as a cure in puerperal infection.

Richmond (*Lancet,* Sept. 25th), reports a few cases successfully treated with anti-streptococcus serum.

Henry (*Austral. Med. Gaz.*, Oct., 1897), gives a few favorable reports in puerperal infection.

My own experience is limited to nineteen cases of scarlet fever, erysipelas, including one case of meningitis and one of puerperal septicæmia.

One patient, a girl with septicæmia, was attended at St. Mark's Hospital. I believe her recovery due to the influence of rest and anti-septic treatment, and not to the influence of the serum. She received in all 20 c.c. of Marmorek. Of the remaining eighteen cases, seventeen ended fatally.

A child, having a mild form of scarlet fever, and which was injected with serum, did not show either good or bad results from this treatment, and I am positive would have recovered even if no serum were used.

Positive effects, specific in character, as we frequently note in the treatment of diphtheria with antitoxin, I cannot report.

There was not a single case in which I could see a distinct crisis following a curative dose, or a decided influence on the temperature.

Severe cardiac depression was noted in seven cases, also manifested by a slow, feeble pulse, several hours after the injection of serum, and lasting for several days. This depression responded easily to the usual cardiac stimulants, like nitro-glycerine. The effect on the kidneys was not studied *post-mortem*, as all the cases treated were in private practice.

The urine, which contained albumen and casts in large quantities, did not appear to be influenced by the quantity of serum injected. In other words, no by-effects, strictly due to the serum were noted.

From what experience I have had, I feel that we are not justified in either using or recommending the use of the anti-streptococcus serum, and that the indiscriminate sale of this serum should be prohibited, until clinical experience established the true therapeutic value of the serum.

187 SECOND AVENUE.

The Truss in Hernia in Infants.—Some writers advise against the use of a truss during the first year of life, trusting that Nature will effect a cure, or believing that no harm will result from the delay. Such teaching should be strongly condemned. In this I am in most hearty accord with Mr. Macready, who says, "directly the rupture is discovered the truss should be applied. Some have imagined that very young children cannot wear a spring truss, but this is an error." The experience with the light spring truss in infantile hernia at the Hospital for Ruptured and Crippled entirely agrees with Macready's. I have yet to see an infant, save possibly three or four suffering from extreme malnutrition, that could not wear a properly constructed and well-fitting steel truss. Such a truss should cause very light pressure, and should be daily removed to permit of careful washing and cleansing of the parts. I regard the steel truss as much superior to the various substitutes, *e.g.*, the "worsted" truss, and this opinion is based upon a careful trial in a large number of cases.—*Dr. Coley, in the Medical News.*

PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS. REPORT OF A CASE OF THE LANDOUZY-DÉJÉRINE TYPE.*

GEORGE M. TUTTLE, M.D.,

Attending Physician, St. Luke's Hospital, Martha Parsons' Children's Hospital, and Bethesda Foundling Asylum, St. Louis.

This diseased condition is sufficiently rare to justify a general description of its nature before dealing with our particular case.

HISTORY.—The first complete account of the disease was by Duchenne, of Boulogne, in 1861, although a number of imperfect cases had been described, but not classified even thirty years earlier. Duchenne recognized and first called attention to the combination of enlarged, but enfeebled, muscles, as pathognomonic of the disease. The first autopsy was made by Eulenberg and Cohnheim in 1866, disclosing the pathological state of the affected muscles, and the entire absence of any lesion of the nervous system.

ETIOLOGY.—Our knowledge here is very limited. The disease is distinctly one of early childhood, before puberty, in contrast to progressive muscular atrophy, a spinal trophic disturbance. It frequently develops during the period of learning to walk. It is much more common in boys than in girls, queerly so when we consider the neuter gender of the human being at this age. The most prominent characteristic is its frequent marked history of family and heredity. The ancestors often show neurotic taint, and a number of instances are reported, where two or three children in the same family present the disease.

SYMPTOMS.—There develops very gradually, so much so as often to make it impossible to date the origin of the disease, weakness in the legs, accompanied by a peculiar gait. The child seems uncertain and clumsy on his feet, has special difficulty in climbing steps, and in sitting down or rising from a chair always finds it necessary to use his hands and arms to assist the action. Each case adopts a characteristic method, first described by Gowers, of rising to an upright posture from the floor. He first rolls over on his face, then raises himself on all fours, and then bringing his hands to his feet, uses them in climbing up his legs and thighs, lifting the weight of his body up by them. Weakness also develops in other muscles of the body, particularly those of the loins, producing, combined with the same condition in the extensors of the thighs, a marked lordosis of the lumbar spine. A compensatory, balancing, curve takes place higher up, giving an upper dorsal kyphosis, with backward displacement of the shoulders. With this is most naturally associated a more or less marked protuberance of the abdomen. Succeeding this weakness there becomes evident a symmetrical increase in bulk of the affected muscles. This is most apparent in the calves, erector spinæ, glutæi, deltoids, and infraspinati. As the disease progresses this hypertrophy of the muscles is succeeded by a gradually increasing atrophy, beginning in the upper extremities, until at the end all the affected muscles are wasted and flabby. The gait is peculiar and hard to describe, the feet being kept far apart, and in stepping they are carried around in a semi-circle, while the body is swayed from side to side as a balance, giving an exaggeration of the rolling gait of a sailor.

---

*Read at the meeting of the Bethesda Pediatric Society, January 14, 1898.

There are no subjective symptoms in the affected parts other than the consciousness of the muscular weakness. There are no bladder and no rectal symptoms, and no change in the mental state.

EXAMINATION shows the affected muscles to be fairly firm, but less so than normal. The parts feel cool, and the surface temperature is somewhat reduced. The reflexes, skin and deep, are diminished or lost, and the electrical reactions to both Galvanism and Faradism are sluggish and decreased, but the reaction of degeneration is never present. The change in electrical responses is due to two things, the small number of intact muscular fibers and the thick, non-conducting fat covering these.

COURSE.—The atrophy gradually increases, becoming more and more general, and is followed naturally by growing helplessness and enfeeblement. Death eventually supervenes as the result of some intercurrent disease, frequently of the respiratory system, but not from paralysis of the diaphragm. In the late years contractures, lateral spinal curvatures, various forms of club foot, and other deformities result.

MORBID ANATOMY.—Macroscopically the affected muscles appear pale or yellowish white, and the cut surface has a decidedly fatty look. The striations are still present, but indistinct.

Microscopically early there is a true hypertrophy of the muscular fibers, which are shortly replaced by connective tissue with large amounts of fat deposited in its meshes, and finally a complete fatty degeneration of, or substitution for, the muscular fibers. The nervous system, brain, cord, or peripheral nerves, shows no change at all.

There has always been some question as to the propriety of classifying this disease with the spinal cord muscular atrophies, but its essential unity with these conditions is well expressed by Dana. He says: "The result of modern studies is to show that the anterior cornual cells of the spinal cord, the motor nerves and their terminal end organs, the muscles, form a trophic unit, and that the same degenerative disease may attack either end, or any part of this physiological mechanism." This best explains the distinction without any etiological difference, between progressive muscular atrophy, neuritic atrophy, and the disease under consideration.

PROGNOSIS.—They never recover. The disease frequently stands still, and periods of seeming improvement may occur.

TREATMENT.—As prophylactic, marriages in these families should be prevented, and if a child is born, extra attention should be given to its personal hygiene. Actual treatment consists in massage, light gymnastics, cool baths and good food. As drugs, arsenic, strychnine and phosphorus are used.

There are recognized three or four types of primary muscular atrophy, differing from the above, but belonging to this group, only in not being preceded by a muscular hypertrophy. These types are named from the muscles first affected, and one of these interests us, as my case presents it in combination with hypertrophy elsewhere. This is the so-called Landouzy-Déjérine, or facio-scapulo-humeral type. It is characterized by involvement, and hence partial paralysis of the facial muscles—those of expression. The face and forehead are flat and stolid, the cheeks do not move in laughing, the lips are partially moveable, but not enough so as to whistle or show the teeth. The eyelids can not be tightly closed, and the naso-labial fold is gone. The voice is monotonous and nasal. The muscles of the shoulder girdle likewise become atrophic and feeble.

The case is that of E. B., a boy aged eight, in whose family there is no case known of any similar trouble, or of a neurotic predisposition.

The child was healthy at birth, breast fed, and, the mother said, began to walk at about eleven months. At about fourteen months of age he had some rather mild febrile sickness, accompanied by an abscess in the ear, and from this time she dates the beginning of his illness. He recovered completely from this attack, but it was soon noticed that he didn't walk as well as before, seeming decidedly less steady on his feet. This was naturally ascribed to weakness; but as he grew older, and his gait still continued bad, the mother was convinced that something more than weakness was the cause. Locomotion became gradually worse, until now to an onlooker, although he can walk across the floor, he has the appearance of being continually on the point of falling.

At some later period the mother first noticed the peculiar, stolid facial appearance, and the nasal, expressionless voice. She has noticed the atrophied condition of the muscles, rather than the precedent hypertrophy. Otherwise the boy is well. He is bright mentally, eats and sleeps well, and has no bladder or rectal disturbance, and there is no change in his emotional nature.

On examination, the boy is of fair size for his age, but presents the peculiar facies of the disease. His facial muscles are all partially paralyzed, taking all expression from his face, and interfering with his laughing, whistling, showing his teeth, wrinkling his forehead, or tightly shutting his eyes. The jaw muscles seem fairly strong, and the tongue moves well. The voice is nasal, in a monotone, and somewhat difficult to understand, like that due to a post-diphtheritic paralysis. On stripping him the gastrocnemii and infraspinati still are some hypertrophied, but all the rest of the muscles much atrophied and flabby, especially those of the shoulder and upper arm, and of the thighs and anterior tibial group. There is a very marked lumbar lordosis and a corresponding abdominal protuberance, so much so that I at first thought he must have some abdominal tumor. The shoulders are thrown far back, and the gait is laughably swaggering. On asking him to get up from the floor, he goes through the characteristic series of motions of climbing up his legs, but even with this help he has difficulty in arising.

The patellæ reflexes are absent, and there is a beginning talipes equinus, as he has lost all power in the anterior tibial group of flexing his feet. His mental condition is such that he is fully aware of his unfortunate condition.

2942 WASHINGTON AVENUE.

Clinical Memoranda.

FOUR CASES OF CATARACT IN CHILDREN OF ONE FAMILY.

BY WILLIAM CHEATHAM, M.D.,

Professor of Ophthalmology, Otology and Laryngology in the Louisville Medical College, Louisville, Ky.

Although this is not a very unusual occurrence I think it worth reporting.

Several months ago the family physician of Mr. R., of Ohio, sent me four boys, all of whom had cataract. The family history is as follows:

Father and mother healthy. No eye trouble in the family except with these children. Eight children; general health of all, good. First child, a girl, aged eighteen years; good vision. Second, a boy aged sixteen years; blind from cataract since six years old; follicular trachoma; right eye looks as if an attempt at extraction of cataract had been made; pupil drawn well up and plugged with opaque lens matter and thickened capsule. Left eye has been needled once; thin membrane in field of pupil. Third child, a girl, aged fourteen years; vision good. Fourth child, a boy, aged twelve years; vision good. Fifth child, a boy, aged ten years; cataract since six years old; follicular trachoma. Sixth child, a girl, aged eight years; good vision. Seventh child, a boy, aged six years; cataract since five years old; follicular trachoma. Eighth child, a boy, aged three years; cataract since eighteen months old.

These children were put in an infirmary and the cataracts needled several times; the operations were done very close together in the children six and ten years of age; cocaine was used; little or no reaction followed, notwithstanding the presence of trachoma. Both obtained good results. The older boy's right eye, when needled, was followed by considerable reaction. The membrane was so tough that I used two of Knapp's knife needles. The left eye was needled with good results; cocaine was used. When I operated upon the little fellow, which I did twice, chloroform had to be given. He was rather difficult to manage in the after treatment and considerable reaction followed. He returned home with the cataract not all absorbed. He will have to return for further surgery.

The presence of trachoma in these cases made some little difference in the after treatment, but caused no complications. It will be observed that the three girls of the family have no cataract yet.

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

JULY, 1898.

Edited by FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician, Hospital for Scarlet Fever and Diphtheria; Consulting Physician, Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK

EPILEPSY.

Epilepsy is unique among diseases. No other morbid condition, unless it be insanity, appeals to so varied a number of individuals. It is found in families of every nationality and social condition. Its strange and uncanny symptoms and its wide distribution make it of particular and almost morbid interest to the laity. Among medical men, it appeals to the general practitioner and the surgeon, the pediatrist and neurologist, and the specialist in many other departments. It does not, however, appeal alone to the physician, the patient, and his family. Herein lies its peculiarity among diseases, for it is thrust upon the attention of the alienist, the penologist, the philanthropist, and the statesman. Unlike most diseases epilepsy renders its victim in a very large number of cases a public charge. Tuberculosis and nephritis send patients to hospitals and retreats for considerable periods of time, it is true, but the insane, the idiotic, and the epileptic alone is a public charge for years. The sufferer from epilepsy may live to old age and may be from childhood a private or public charge. Every almshouse and asylum has its grey haired epileptics. The insane and idiotic have long been intelligently and humanely cared for, the epileptic, until recent years, has been utterly neglected, the common almshouse being his only place of refuge.

Unlike the idiotic and insane, epileptics are, in a large number of cases, capable of self-support under suitable conditions. Many a sufferer from this disease who is now an expense upon the community might, under suitable conditions, be self-supporting. Some indeed, might be more than self-supporting. It is clear, therefore, that epilepsy is a pathological condition of unusual importance. Its interest is not limited to the medical profession, and it must be dealt with in a manner wholly different from most diseases. It is a very widespread disorder. There are supposed to be at least 140,000 such unfortunates in the United States alone and over 12,000 in the State of New York. Of these some 400 or more are in the insane asylums and about 600 in the county poorhouses. The rest of them are scattered throughout the State in their own families, among the rich and poor. Many are so slightly affected that they are able in spite of their seizures to pursue some of the ordinary vocations of life. To all are familiar certain well-known historical and literary characters in whom epilepsy failed to restrict the development of their genius. Among these were Cæsar, Napoleon, Moliere, Petrarch, Dostojowsky, and others.

THE TREATMENT OF EPILEPSY.

The treatment of epilepsy and the management and disposition of the epileptic are very grave and complex questions. Medicinal treatment alone is proverbially unsatisfactory. The disease is, in fact, one of the most peculiar in its response to medical treatment. It has a strange propensity to improve temporarily under almost any plan of treatment. A change of surroundings, a change of physician, or a change in the plan of treatment, are commonly followed by improvement. The improvement, however, is temporary, and in the larger number of cases, the victim sooner or later relapses into his former condition. With a single exception, every system of treatment thus far proposed has proved on the whole disappointing. That one system is the colony system, in which the epileptic of a State are taken from the county poorhouse and asylums and are collected into a colony. The object of such a colony is to provide for four great needs of epileptics, which are not satisfied elsewhere. 1st. To give them schools where they may attain any degree in education. 2d. To provide industrial training of all kinds, for there is no vocation which some epileptics may not follow. 3d. To give them a home, when all other doors are closed to them. 4th. To see that each case is carefully studied and treated.

Epileptics are among the most unfortunate of beings. They cannot be received into the public schools, they become burdensome to their families, and find it difficult to gain employment as they grow older. Few general hospitals receive them as patients. There is, in fact, no place for the epileptic poor, except the almshouse or the insane asylum.

The first epileptic colony in the true sense of the term was that of Bielefeld in Germany, which has been the model upon which others, the world over, have been based. The favorable results of the colony method of treatment are unquestionable, and are not alone physical, but mental and moral as well. In the last report of the Craig Colony, the managers thus speak of the results of the work:

"We are able to reiterate even more emphatically the statements before made as to the humanity, utility and economy of this scheme of caring for one of the most miserable classes of the State's dependents. The good results are in nearly every case noteworthy, and in many remarkable. The changes observed consist in improvement in general physical health, gain in weight, development of character and capacities, restoration of cheerfulness, happiness and ambition, and indeed of a complete physical and mental regeneration. Most of the patients have presented a marked reduction in the frequency of their epileptic attacks, and some have had few or none at all. All of the residents of the Colony undergo hygienic, moral, and medicinal treatment for their disease, but we ascribe much of the general betterment of their condition to healthful out-of-door occupation, to the hopeful attitude of mind begotten by pleasant surroundings, and to the industrial and pedagogic training in all directions which they receive."

THE CRAIG COLONY FOR EPILEPTICS.

The establishing of this colony was a notable event in American medicine, and has justly received much attention, as it is one of the most extensive, and bids fair to be one of the most complete, epileptic colonies in the world. It is located on a tract of land extending from the lowlands of the Genesee Valley up the slope of the western hills, a distance of nearly three miles, occupying about 1,900 acres of land. The State was exceedingly fortunate in being able to obtain a tract of land so large and so well adapted to the purpose. It had already been a colony for many years, being the property of a company of Shakers who had built nearly forty buildings for residences, barns, and shops. The Shakers, having gradually diminished in numbers, sold the property intact for a very reasonable price. The colony had, therefore, at the outset a very substantial basis upon which to begin its work.

The Craig Colony is a colony in the true sense of the term. There are several colonies of similar character in Europe, the most notable of which is that at Bielefeld. Several of the institutions in this country which bear the name of colony are not such, in the strict sense of the term.

It is the design ultimately to receive both the rich and the poor. The property is divided by a deep ravine into two portions. Upon one side will be located all the institutions designed for those who would otherwise go to the almshouses. These will first be perfected. Upon the other side will be buildings of various kinds, among them private cottages, where the families of the well-to-do may reside, as in a village, while their unfortunate sufferers are under treatment. The Colony is already one of the most beneficent institutions of the State, and if it remains unhampered from political interference, it is destined to become much more so.

The Colony was named in honor of the late Oscar Craig, of Rochester, whose efficient and gratuitous public services in behalf of epileptics and other dependent unfortunates, the State of New York desired to commemorate.

The fourth annual report has recently been issued, and shows steady development and a most satisfactory condition of affairs. No small portion of the successful workings during this first, and in many respects, experimental year, are due to the vigor and efficiency of the Medical Superintendent, Dr. William P. Spratling.

THE NATIONAL SOCIETY FOR THE STUDY OF EPILEPSY.

Owing to the peculiar character of epilepsy, to which we have already referred, it is somewhat strange that so little general study has been devoted to the disease beyond its strict medical aspects. Believing that the disease in its various phases was worthy of more careful study, Dr. Spratling, of the Craig Colony, instituted measures which have resulted in the formation of the National Society for the Study of Epilepsy and the Care and Treatment of Epileptics. A meeting for organization was held at the New York Academy of Medicine, on May 24th. The objects of the society were thus summarized:

1st. The scientific study of epilepsy.

2d. The rational treatment of the disease.

3d. The best methods of caring for dependent epileptics, including—

- *a.* The construction of proper homes based upon a study of the epileptic's needs as to classification and environment.
- *b.* The study of the utilization of the epileptic's labor, for economic, scientific and ethical reasons.
- *c.* The study of the best educational methods to be em-

ployed, including manual, industrial, intellectual and moral forms and forces.

At first thought it might seem that a society devoted to a single disease was not called for. It will be seen, however, that the society is not limited to the simple study of the disease from a medical standpoint by medical men alone. A very important object will be to encourage the establishing of colonies in every State, and to bring about a more humane and civilized treatment of these unfortunates. It must not be forgotten, however, that epilepsy is not, strictly speaking, a disease, but in most cases, at least, a manifestation of various underlying pathological conditions. It is not, therefore, even from a medical standpoint, a narrow and restricted subject. We are quite unable to agree with those who believe that epilepsy in all its various aspects can be satisfactorily considered by general neurological societies. They have certainly thus far utterly failed to accomplish the object for which the new society has been instituted.

The officers elected were: President, William P. Letchworth; First Vice-President, Dr. Frederick Peterson ; Second Vice-President, Prof. William Osler; Secretary, Dr. William P. Spratling; Treasurer, Dr. H. C. Rutter. Those who indorsed the new movement and spoke of its need were: Dr. Abram Jacobi, Dr. B. D. Evans, Morris Plains, N. J.; Dr. C. A. Harter, Craig Colony; Dr. H. C. Rutter, Ohio; Dr. William M. Bullard, Massachusetts Hospital for Epileptics, Boston, and Dr. E. D. Fisher, Professor on Nervous and Mental Diseases in the University Medical College.

Membership of the American Society for the Study of Epilepsy: Hon. W. R. Stewart, Hon. J. W. Keller, Hon. W. P. Letchworth, Mrs. Oscar Craig, Mrs. A. G. Spratling, Miss E. D. Holt, Mrs. K. H. Salmon, Mr. J. O. Fanning, Mr. R. H. Hebberd, and Drs. Wm. Osler, A. Jacobi, F. Peterson, I. Van Gieson, E. D.

Fisher, F. M. Crandall, B. D. Evans, W. E. Dold, D. A. Gorton, L. P. Clark, P. Bailey, C. S. Hoyt, C. A. Herter, J. F. Edgerly, J. Collins, G. P. Preston, W. F. Drewry, Wm. Mabon, H. M. Hurd, M. P. Jacobi, M. L. Benoit, E. Gorton, H. C. Rutter, O. Copp, W. M. Bullard, E. J. Spratling, E. Flood.

Diphtheritic Affections of the Heart.—Mollard and Regaud (*Ann. de l' Institute Pasteur*) record the effects upon the heart of fatal doses of diphtheria toxin injected into dogs, rabbits, and guinea-pigs. True myocarditis was never observed, and cardiac symptoms were, as a rule, obscured by paralysis and other more marked affections, nor were the macroscopic lesions observed at the necropsies ever unassociated with disease of other organs. The naked-eye appearance of the myocardium did not suggest any microscopic changes such as were actually found. Further examination showed that in every case (eighteen in all) of experimental diphtheritic intoxication the myocardium was affected. The affection invariably started in, and was sometimes confined, to the muscular tissue, and it commenced in the contractile substance as an impairment of the normal striation, and later attacked the nucleus and protoplasm, leading eventually in some cases to complete destruction of the muscular substance. Lesions of the myocardial vessels were very frequent, the muscular coat of the arterioles being particularly affected; the changes in the smooth muscle were strictly comparable to the contemporary alterations in the cardiac muscular fibres. In acute and subacute cases (surviving at longest seventeen days) no hyperplasia of the connective tissue elements was observed, the sole important change in the connective tissue being leucocytosis. This diffuse interstitial leucocytosis appears to have been no more than a phase in the general leucocytosis which is constant in diphtheria. The nodular interstitial leucocytosis is in relation to the foci of muscular disintegration. The primary muscular lesion leads to leucocytosis. The leucocytes absorb the muscular *débris*, particularly the sarcoplasmic exudations. The foci and disintegration become the foci of phagocytosis. The whole process is similar, both in symptoms and pathological appearances, to that found in human diphtheria.—*British Medical Journal.*

Obituary.

CHARLES WEST, M.D., F.R.C.P.

From the Edinburgh Medical Journal, May, 1898.

By the death of Dr. Charles West, which occurred at Paris on 19th March, still another of the rapidly diminishing courtly old school of practitioners has been called to his rest, full of years and honors.

West was born at London in 1816, and, having from his earliest years entertained strong predilections for the medical profession, he was, at the age of fifteen, apprenticed to the village apothecary at Amersham.

He never regretted this early part of his medical training, and was frequently wont to declare that the abolition of the apprenticeship system was to a large extent responsible for the slipshod manner in which drugs are prescribed by the present-day practitioner. He entered himself a medical student at St. Bartholomew's in 1833, where he remained for two years, after which he studied for a year at the University of Bonn and another at Paris, finally graduating at Berlin in 1837. On returning to London, he started in practice, and established his reputation as a lecturer by delivering a course of lectures on diseases of women, at St. Bartholomew's Hospital, with which he had become connected. His lectures were largely attended and highly appreciated, not only on account of the excellent matter which they contained, but for the studied and polished language in which they were written, and for the beautifully modulated and musical voice in which they were delivered. West was indeed a born orator. The establishment of a children's hospital in London was largely due to West's influence and activity, and his name will ever be honorably and inseparably associated with the erection of the Sick Children's Hospital at Great Ormond Street. The work of establishing this hospital was to him a labor of love; and, from the time the idea first occurred to him in 1849, he devoted himself to the cause he had so deeply at heart, till at length in 1852, after many disappointments and much opposition, he had the satisfaction of seeing the hospital fully equipped and opened. From this opening day until the date of his death, forty-six years later, he continued to take the warmest interest in its welfare.

Naturally fond of children, he possessed the happy knack of quickly gaining the confidence of his little patients, who seemed intuitively and instinctively to know that they could trust him. West contributed largely to medical literature, his two best known works being "Lectures on the Diseases of Infancy and Childhood," which reached a seventh edition and was translated into nearly every European language, and "Lectures on the Diseases of Women," which also went through several editions. After severing his connection with the Children's Hospital, he felt that the most important part of his life's work was accomplished, but his interest in the profession, of which to the very end he proved himself such a devoted adherent, never flagged, and during the last year of his life he published his address on "The Profession of Medicine: its Study and Practice, its Duty and Rewards."

Society Reports.

MINUTES OF THE TENTH ANNUAL MEETING OF THE AMERICAN PEDIATRIC SOCIETY.

Held at Cincinnati, June 1, 2 and 3, 1898.

The following members were present:—G. N. Acker, M.D., Washington; S. S. Adams, M.D., Washington; A. Baines, M.D., Toronto; W. D. Booker, M.D., Baltimore; E. Buckingham, M.D., Boston; A. Caillé, M.D., New York; W. S. Christopher, M.D., Chicago; F. S. Churchill, M.D., Chicago; F. Forchheimer, M.D., Cincinnati; R. G. Freeman, M.D., New York; J. P. C. Griffith, M.D., Philadelphia; L. E. Holt, M.D., New York; F. Huber, M.D., New York; A. Jacobi, M.D., New York; C. G. Jennings, M.D., Detroit; C. G. Kerley, M.D., New York; J. L. Morse, M.D. Boston; W. P. Northrup, M.D., New York; B. K. Rachford, M.D., Cincinnati; T. M. Rotch, M.D., Boston; I. M. Snow, M.D., Buffalo; J. P. West, M.D., Bellaire; J. E. Winters, M.D., New York; J. H. Fruitnight, New York.

FIRST SESSION.—JUNE 1.

The meeting was called to order by the President, Dr. L. Emmett Holt, of New York.

Dr. Francis Huber, New York, reported a case of "Congenital Sacro-Coccygeal Tumor."

Discussion by Dr. Jacobi.

Dr. F. Forchheimer, Cincinnati, read a paper entitled the "Exanthem of German Measles."

Discussion by Drs. Griffiths, Northrup, Jacobi, Buckingham, Adams, Rotch, Caillé and Fruitnight.

Dr. F. S. Churchill, Chicago, read a paper entitled "The Urine of Healthy Infants and Children."

Discussion by Drs. Christopher, Tyson, Fruitnight, Rotch and Griffith.

Dr. Charles G. Kerley, New York, read a paper on "Acute Nephritis of Malarial Origin in Early Childhood."

Discussion by Drs. Northrup, Caillé, Fruitnight, Forchheimer, Adams and Jacobi.

Dr. B. K. Rachford, Cincinnati, read a paper on "Albuminuria Accompanying Lithæmic Attacks."

Discussion by Dr. Caillé.

Dr. J. L. Morse, Boston, read a paper on the "Classification of the Anæmias of Infancy."

Discussion by Drs. Morse and Freeman.

SECOND SESSION.—JUNE 2.

Upon motion the following letter was sent to Dr. John A. Larrabee, of Louisville:

"The American Pediatric Society learn with regret of the serious illness of Dr. John A. Larrabee, and desire to express its sympathy for him and the hope that the life of so prominent a worker in diseases of children may be long spared."

The report of the Committee of the Society on the Collective Investigation of Scurvy in America was read by the Chairman, Dr. Griffith.

It was moved that the thanks of the Society be expressed to the Committee for their work. This was seconded and unanimously carried.

Discussion by Drs. Caillé, Jacobi and Griffith, upon the motion to accept the report of the Committee.

Discussion upon the report by Drs. Christopher, Griffith, Northrup, Morse, Jennings, Booker, Caillé, and Forchheimer.

During the discussion Dr. Caillé submitted a Minority Report.

On motion, the report was referred back to the Committee with instructions to report on the following day.

Dr. T. M. Rotch, Boston, presented short reports on "Some Unusual Cases."

(*a*) Two cases of Melanosis Lenticularis Progressiva.

(*b*) Two cases of Intussusception.

(*c*) A case of Cerebro-Spinal Meningitis.

Discussion by Drs. Huber, Fruitnight, Winters, Northrup, Conner, Jacobi and Caillé.

Dr. George N. Acker, Washington, reported "Cases of Tubercular Pyelitis" and "Death from Pulmonary Hemorrhage in an Infant Aged Two Years."

Dr. F. S. Churchill, Chicago, reported a case of "Sarcoma of the Kidney in an Infant Aged Nine Months."

Discussion by Drs. Morse, Jennings, Jacobi and Fruitnight.

THIRD SESSION.—JUNE 2.

The annual address of the President, entitled "Scope and Limitations of Hospitals for Infants," was read by Dr. L. Emmett Holt, New York.

Dr. W. S. Christopher, Chicago, read a paper entitled "The Fatigue Period in Child-life."

Discussion by Drs. Jacobi, Forchheimer, Rotch.

Dr. C. G. Kerley, New York, reported "Seven cases of Laryngeal Diphtheria Treated with Antitoxin, with One Death."

Discussion by Drs. Caillé and Fruitnight.

Dr. A. Jacobi, New York, reported "Three Cases of Amurotic Idiocy."

FOURTH SESSION.—JUNE 3.

A discussion on the question "Should all Milk used for Infant Feeding be Heated for the Purpose of Killing Germs? If so, at what Temperature, and How Long Should this Temperature be Continued," was opened by Dr. Freeman, of New York.

The revised report of the Committee on Scurvy was presented by Dr. Griffith.

Discussion on Dr. Freeman's paper and the report by Drs. Booker, Buckingham, Winters, Morse, Jacobi, Adams, Caillé, Jennings, Griffith, Holt, and Freeman.

Dr. Caillé, New York, read a paper entitled "The Significance of Fever after Operations for Pyo-Thorax."

Discussion by Dr. Rotch.

Dr. Adams, Washington, read a paper entitled "Irrigation by Submersion in the Treatment of Empyema."

Discussion by Drs. Winters, Caillé and Jacobi.

Dr. Snow, Buffalo, reported "Two Cases of Insolation in Infants."

The following papers were read by title: "A Dermoid Cyst of the Large Fontanelle," by A. Jacobi.

"A Study of an Epidemic," by W. L. Carr.

"Clinical Observations in Tubercular Meningitis," by H. D. Chapin.

"A Case of Congenital Defect of the Biliary Duct," by C. P. Putnam.

"Peculiar Types of Broncho-Pneumonia," by F. M. Crandall.

BUSINESS MEETING.

On nomination of the Council the following Officers were elected:

President, - - - - - - Dr. W. P. Northrup.
First Vice-President, - - - Dr. Geo. N. Acker.
Second Vice-President, - - - Dr. Irving M. Snow.
Secretary, - - - - - Dr. Samuel S. Adams.
Treasurer, - - - - - Dr. E. M. Buckingham.
Recorder and Editor, - - - Dr. Floyd M. Crandall.

Delegate to the Congress of American Physicians and Surgeons,
Dr. A. Jacobi.

Alternate, - - - - - Dr. A. Caille.
Member of Council, - - - Dr. F. Forchheimer.
New Members, Dr. A. C. Cotton, Chicago; Dr. D. J. Milton Miller, Philadelphia; Dr. S. M. Hamill, Philadelphia.

Place of Meeting, *Deer Park Hotel, Maryland.*

Time of Meeting, *June—, 1899.*

It was voted that the Transaction of the Society be printed as last year, and under the same conditions. An appropriation to cover additional expenses for publishing the Transactions for 1897 was made, and also an appropriation to defray the expenses incurred by the Collective Investigation Committee. An assessment of Five Dollars was made for annual dues. The Treasurer submitted a report showing a balance of $146.06. It was moved and carried that reprints should be sent to the contributors of the Scurvy Report and that they should contain both the majority and minority reports and the discussion.

A vote of thanks was passed to the resident members for their kind attentions.

Floyd M. Crandall, M.D.
Recorder.

Current Literature.

MEDICINE.

Hyde, James Nevins: What Conditions Influence the Course of Infantile Syphilis? (*Medical News*. 1897. Vol. lxxi, No. 23.)

In order to take a comprehensive survey of the field by the above inquiry it is necessary to determine definitely what is to be understood by "Infantile Syphilis." The words, strictly interpreted, relate only to syphilis in infants. Restricting the discussion, however, to such a narrow division of the subject would mean an exclusion of the most important and interesting of the ascertained facts. It is desirable instead, to include under this general term (1) the phenomena of the syphilis as displayed in the ultra-uterine life, syphilis of the products of conception, of the ovum, and of the fœtus, (2) ultra-uterine or hereditary syphilis in the infant, and, (3) acquired infantile syphilis, the disease as it affects otherwise healthy infants who suffer from what has been termed contact-syphilis.

After an extended discussion along these lines the author concludes as follows: With a view to answering the question, what conditions influence the course of acquired infantile syphilis, the virus or the individual, experience would point to the conclusion that in infants the individual, as against the virus, exerts that degree of higher influence which may be recognized in the case of acquired syphilis of adults. Many writers who touch upon this theme have introduced, in the presentation of these cases, the influence of treatment as a modified cause. Here is a question simply of virus *versus* individual, with the weight of evidence now on one side and now on the other, according to the conditions presented in different cases. These conditions are wholly different in the case of chemic intoxication, and in the instance of poisoning by living micro-organisms. In the former the pathologic results are proportioned with approximate exactness to the dosage of the chemic poison. In the latter, the multiplication of fission-fungi within the animal organism may proceed with the greatest activity after a minimum quantity of the virus has once been introduced into the economy; and the soil, together with favorable or inhospitable environment, has much to do with the question of multiplication and toxin production of the implanted germs.

If we turn to the facts of general pathology we find the answer which awaits us there the same as in syphilis. The smallest dosage of the variolous poison, even in the attenuated form of mild varioloid, is capable of transmitting to the unprotected the severest confluent form of the disease. He is indeed blind who cannot see in the subject of tuberculosis, of septicemia, of yellow fever, and of cholera, the wall which is ever and again built as a bulwark to the encroachments of disease, by the second constitution, the satisfactory habits, and the hygienic environment of the selected individual.

McClanahan, H. M.: The Etiology and Significance of Convulsions in Children. (*The American Journal of Obstetrics.* 1897. Vol. xxxvi, No. 236.)

The exciting causes of convulsions are numerous and are classified by the author as follows: First, *reflex causes.* Under this head we have traumatism, burns, and foreign bodies in the nose and ear. Phimosis is undoubtedly an exciting cause, but not so much the actual condition of phimosis as it is the adhesions existing between the foreskin and the glans, or the infection of the smegma, that is the real source of the irritation. From time immemorial dentition has been considered a cause of infantile convulsions. The physician would do well to be very sceptical of this cause, and not be satisfied until he has made a careful examination; for dentition is a purely physiological process, and unless there is some morbid condition, such as the formation of an abscess or intense hyperemia, we should not attribute convulsions to dentition. Intestinal parasites are perhaps the cause in a limited number of cases. More especially is this true of the round worm, in consequence of its nomadic tendency. Indigestion is the most frequent exciting cause. Under this head two divisions are made: First, the mechanical, due to the indigestion of insoluble substances, such as the skins and seeds of fruit, the parenchyma of the orange, nuts, etc. Second, indigestion due to chemical causes. Here we have a process set up in consequence of fermentation or other retrograde changes in the food, producing toxins which, by their absorption, act as irritants to the nerve centers. These are the cases in which we have convulsions with high fever. It is a matter of common observation that after a thorough purgation, resulting in unloading of the intestinal tract, the fever subsides and the convulsions cease. In very young infants uric-acid infarctions probably act as an exciting cause. Second, *certain blood states or toxic conditions.* Under this head we have convulsions occurring in the course of exanthematic diseases, pneumonia, summer diarrhœa, nephritis, etc. It is true we have in some of these conditions the high fever, which is perhaps associated as a cause; but it is unquestionably true that certain toxic elements circulating in the blood act as irritants to the nerve centers. Third, *central causes.* Under this head are included those cases where the irritation is within or upon the brain. This will include tumors, abscesses, emboli, thrombi, and, in the case of young infants, hemorrhage; also convulsions occurring in the course of either purulent, tubercular, or cerebro-spinal meningitis. Most of the serious and fatal cases come under this head. Fourth, *hyperpyrexia.* Experiments upon the lower animals show that when the body heat is raised to the temperature of 107°, convulsions are very likely to ensue. It is difficult to say whether the increased body heat alone is the cause of the convulsion or whether the high temperature, by causing rapid disintegration of tissues, resulting in the production of certain poisons, is the real cause. In either case experience teaches us that with the reduction of heat there is usually a cessation of the convulsions. Fifth, *certain conditions of the mother.* This, of course, only applies to nursing infants.

The significance of convulsions in children depends upon many circumstances. As a general rule, it may be said that convulsions are not dangerous to life. Important exceptions to this rule are when this symptom occurs in the course of some serious disease, or when the cause is central. Convulsions occurring without assignable cause and at regular intervals should lead the physician to suspect epilepsy. There is no distinction between an epileptic fit and ordinary convulsions, and it is simply the regular recurrence that establishes the fact of epilepsy. This serious disease frequently begins in childhood. Gowers states, in his analysis of 1,450 cases, that one-eighth of the whole number had their origin during the first three years of life. In Hammond's analysis of 570 cases about 10 per cent. were traced to the first three years of life; and in Prof. Osler's analysis of 480 cases of epilepsy in children, 180 commenced during the first three years of life. It is certainly important for the physician to early recognize the epileptic nature, because it is an established clinical fact that there is a rapid impairment of mental function in this disease.

Weber, F. Parkes: Fatal Acute Alcoholism in a Child. (*Edinburgh Medical Journal.* 1897. Vol. xliii., No. 504.)

An apparently healthy girl, five years old, unaccustomed to alcohol, took on an empty stomach a small amount of undiluted whisky. She soon became insensible, and artificial respiration was at one time resorted to for the maintenance of life. After about nine hours a second stage was entered on, characterized by violent tetanic convulsions. As the convulsive tendency diminished, a third stage could be distinguished, marked by dyspnœa, cyanosis, and an increasing temperature. The child never regained consciousness, and died about fifty-six hours after the whisky was taken, in a similar way to that in which persons in a "status epilepticus," or children with a series of infantile convulsions, sometimes die.

Although absinthe is in France well known to produce epileptiform convulsions in some persons, when an overdose is taken, and always does so when injected into animals, a similar spasm-producing quality has not been assigned to whisky. There was no reason, however, to suspect the truth of the parents' evidence, although the father may have under-estimated the amount of alcohol taken. Moreover, children are, of course, more liable to convulsions from any cause than adults, and the whisky taken on an empty stomach may have been rapidly absorbed, and have produced such an impression on the cortical grey matter of the child's brain that a "status" of convulsions was produced.

On the whole, the most probable explanation of the case seems to be that the whisky (the exact amount taken must be left uncertain) induced insensibility and a "status" of convulsions. This terminated fatally as any "status" of convulsions in children, and the "status epilepticus" of ordinary epilepsy sometimes do.

HYGIENE AND THERAPEUTICS.

Simon, Chas. E.: A Study of Thirty-one Cases of Chlorosis, with Special Reference to Etiology and Dietetic Treatment. (*American Journal of Medical Sciences.* 1897. Vol. cxiii., No. 4.)

The author enters an extended investigation regarding the etiology of chlorosis. It seemed of interest to him to determine, first, the frequency with which anæmic conditions in general are associated with splanchnoptosis and atony; and, secondly, to repeat the work of Meinert, Pick, and Leo.

An analysis of Table III. of the author shows that splanchnoptosis is by no means invariably associated with chlorosis, although a corset was worn in almost every instance. The conclusion, hence, appears justifiable that while splanchnoptosis is frequently observed in cases of chlorosis, it cannot be regarded as the essential causative factor.

Atony of the stomach and splanchnoptosis have in themselves no part in the causation of chlorosis. In making this statement, however, the author does not wish to convey the impression that the existence of splanchnoptosis is of no significance in such cases. There can be no doubt that the anæmic condition will be more difficult to treat, especially if a marked grade of nephroptosis is also present.

An analysis of *post-mortem* records, as far as such have been accessible to the author, shows, futhermore, that ecchymoses of the gastro-intestinal mucosa are by no means commonly observed. Hoffmann, also, speaks of the infrequency of hemorrhages in chlorosis, and contrasts chlorosis in this respect with other blood-diseases. The conclusion, hence, appears justifiable that gastro-intestinal hemorrhages cannot be regarded as the sole cause of chlorosis. It is the author's belief that when they occur they are the result of the anæmic condition, and not the cause.

It is thus clear that no definite rule can be laid down regarding the secretion of hydrochloric acid in cases of chlorosis. Neither hyper-, hypo-, nor anachlor-hydry can be regarded as the cause of chlorosis. In the writer's estimation, the abnormal results must be explained by the existence of a general neurotic condition, which is frequently observed in cases of chlorosis.

The hypothesis that chlorosis is referable to the repeated losses of blood during the process of menstruation need not be considered, as the disease not infrequently occurs in females before menstruation has been established. It would be difficult, moreover, to explain the reason why chlorosis results in such an infinitesimally small percentage of cases when compared with the total number of menstruating females.

Those, finally, who regard chlorosis as an infectious disease have still to demonstrate the specific bacillus. The occasional occurrence of enlargement of the spleen can hardly be regarded as sufficient evidence. Schroth has met with splenic enlargement only twice in his series of cases, and the writer has only one case of this kind to report in a total of thirty-one cases.

From the brief analysis of the various hypotheses that have thus been offered to explain the etiology of chlorosis it is clear that there is not one which can be regarded as entirely satisfactory. This statement, however, presupposes the unity of the disease.

Not many years ago it was thought that chlorosis occurred only in females about the age of puberty. From time to time cases have been observed, however, in which the chlorotic symptoms appeared much earlier; and Rieder has recently pointed out that the disease may develop much later. He cites three carefully studied cases, occurring in females, in which the disease appeared at the age of thirty, forty, and forty-two years, respectively.

It appears to the author that too much stress has been laid upon the occurrence of menstrual abnormalities and the "chlorotic" facies in the diagnosis of the disease. It would be better to discard the term "chlorosis" altogether, as it has reference to a symptom only, *viz.* the greenish-yellow hue of the skin, which is by no means always observed, its occurrence being largely restricted to brunettes. The abnormalities in the menstrual function can likewise not be regarded as characteristic of the disease, as chlorosis is not only observed before the menses have appeared, but amenorrhœa, menorrhagia, and normal menstruation may all be observed in the course of an attack. Chlorosis, moreover, has also been met with in the male, and the writer's experience has led him to the conclusion that it is not at all rare in that sex.

The question arises: What is the smallest amount of hæmoglobin that may be met with in health? The author's experience has led him to the conclusion that amounts of hæmoglobin corresponding to 100 or over of Fleischl's instrument are only exceptionally seen in city-dwellers, and that figures varying between 80 and 100 must be regarded as normal for such persons. Percentages lower than 70, when associated with a fairly normal number of red corpuscles, or a diminution less than that of the hæmoglobin, should be regarded as indicating a condition of chlorosis, or of simple anæmia, a term which the writer prefers.

If we thus extend the definition of the term "chlorosis," it will be found that the hypotheses set forth above become wholly untenable, providing, of course, that chlorosis constitutes a unity. Congenital hypoplasia, the wearing of corsets, with its attendant evils, viz., compression of the thorax and abdomen, splanchnoptosis, menstrual abnormalities, vasomotor neuroses depending thereupon, autointoxication, as far as our present knowledge goes, are all factors, none of which can be said to be uniformly associated with chlorosis. As a result of his study, the author has been led to the conclusion that in the great majority of cases chlorosis is essentially a disease of malnutrition, the result very frequently of abnormal feeding in early childhood. Objections may be raised to this opinion on the ground that chlorotic patients are usually well nourished and frequently exhibit a perfectly normal appetite as to the quantity of food; in such cases also the proteid metabolism has been found to be normal.

The latter argument may be answered first. It is true that the proteid metabolism will be found normal, if the case be studied at a hospital, where the patient is obliged to eat what is placed before him, and where he ingests weighed quantities of food. The chlorotic patient is capable of not only digesting a normal amount of proteid material, but also of assimilating the products of digestion. It would be faulty, however, to argue from the fact that experiments upon metabolism show a patient to be capable of digesting and assimilating definite quantities of food that the patient's nutrition is not impaired.

If the urine of chlorotic patients be systematically examined, the correctness of the writer's statement can be readily demonstrated. The specific gravity is almost always low. Inferences should, however, only be drawn when the specific gravity is determined from a specimen taken from the total quantity of urine voided in the twenty-four hours. The inorganic salts, especially the chlorides and phosphates, are likewise diminished. Most important of all, the elimination of nitrogen is diminished. There are a few exceptions in which the specific gravity and the elimination of nitrogen are increased, and which the writer is not prepared to account for; the rule, however, is that in chlorosis we meet with a subnormal elimination of nitrogen, referable to the ingestion of an insufficient supply of proteid food, and especially of red meats. It is the writer's belief that the great majority of cases of chlorosis are thus:

It would be an easy matter to detail many such cases. The author believes, however, that he has sufficiently demonstrated that chlorosis is in the great majority of cases the result of malnutrition, dependent upon the consumption of an insufficient amount or of an unsuitable quality of proteid food.

During the last three years the author has been in the habit of treating his cases of chlorosis without drugs, and he claims to have obtained results which at least are as satisfactory as those observed in cases in which iron exhibited its "specific" effect. Starting upon the hypothesis that an insufficient consumption of proteid food must be regarded as the causative factor in the great majority of cases of chlorosis, he has ordered for such patients a diet in which proteid material largely predominated. Before proceeding to detail this diet, it may be mentioned that it has been long known that with a diet composed exclusively of non-nitrogenous food the percentage of hæmoglobin undergoes a notable diminution, while it is augmented by a diet rich in proteids.

The diet which is ordered is given below. Additional instructions, however, are also given: Meals should be taken five times daily, viz., at 8 A.M., 11 A.M., 2 P.M., 5 P.M., and 7 P.M. Rest after meals is insisted upon whenever hyperchlorhydry is found to exist, while moderate exercise is advised whenever hypochlorhydry is found to exist: Ten hours of sleep, warm salt-water baths twice weekly, dry friction in the morning, avoidance of society, etc., are other factors which enter into the plan of treatment.

Diet: Of meals the patient is instructed to indulge liberally in beef and mutton. Raw beef, finely hashed or scraped, is taken once daily, preferably at 11 A.M., on toast or stale bread, with pepper and salt. The so-called white meats are only exceptionally allowed. At dinner-time the patient also receives from one-half to one ounce of bone-marrow, obtained from the shin-bone of the ox. This should be brought upon the table while hot.

Of vegetables, reference is given to *purées* of peas, beans, and lentils; but green and white vegetables are not excluded. Potatoes are either not given at all, or only once daily, and in small amount.

Of fruits practically all are permissible, with the exception of berries. These may, however, also be given in *purée* form, when deprived of their seeds. Apples are excellent and well borne in most cases.

Of bread, rye-bread is preferred; it should be twenty-four hours old. Toast, Zwieback, and rebaked bread are likewise allowed.

Puddings, pies, pastry, and preserves are interdicted. The same holds good for hot bread, corn-, buckwheat-, and griddle-cakes, and oatmeal.

Coffee and tea are prohibited; milk, buttermilk, cocoa (particularly those forms in which the fat has not been wholly extracted, such as Philips'), and a good quantity of dark beer (Salvator, Pschorr, Würzburger, Klosterbräu, and Bartholomay's Ne Plus Ultra), one pint daily, constitute the beverages which are consumed in addition to one or two pints of water. The writer wishes to insist especially upon the value of dark beer in cases of chlorosis. One pint should be consumed daily; one tumbler-full at 11 A.M., with the beef sandwich, and one just before retiring.

With the treatment thus outlined the author has obtained most satisfactory results in the absence of medication, results, moreover, which compare very favorably with the best that have ever obtained with iron, manganese, and other preparations of a medicinal character.

The author regards bone-marrow as a valuable article of diet in the treatment of chlorosis. Curiously enough, most benefit was obtained with the marrow of the long bones of the ox, of which one to one and a half ounces were administered daily. As the general plan of treatment already described was carried out in almost every instance, it is impossible to determine to what extent the improvement was due to the bone-marrow alone.

The author is not prepared to offer any hypothesis as to the reason why bone-marrow is so valuable. The fact that practically the same results may be obtained with the yellow marrow of the long bones as with the red marrow, certainly speaks against

Billing's assumption that the beneficial results which may be obtained are due to the iron which marrow contains.

Abnormalties of "internal secretion" are correctly regarded as the basis of a number of diseases, among which may be mentioned myxœdema, cretinism, Basedow's disease, acromegaly, Addison's disease, pancreatic diabetes, and the affections shown to result from premature loss of the functions of the overies and testicles. It would be tempting to view chlorosis in this light. The author does not feel justified, however, with the data at his disposal, to venture upon such a wide field for speculation.

Conclusions:

1. An anatomical basis of chlorosis has not been satisfactorily determined.

2. A perversion of the appetite—excessive consumption of starches and sugars—is a common symptom of chlorosis.

3. The development of chlorosis is due to an insufficient consumption of animal proteids.

4. Chlorosis is far more common than is generally supposed, and occurs in both sexes and at almost all ages.

5. The diagnosis of chlorosis should be based altogether upon an examination of the blood.

6. The term chlorosis should be discarded, and "simple anæmia" substituted.

7. Iron is not a specific in the treatment of chlorosis.

8. In the treatment of the disease attention should primarily be directed to the diet.

9. In cases in which iron fails satisfactory results may be obtained, without medication, from a suitable diet, in which animal proteids, bone-marrow, and dark beer are the principal factors.

10. The beneficial effects of bone-marrow are not due to the amount of iron which it contains.

Golay: Prolonged Diphtheria. (*Rev. Méd. de la Suisse Rom.* 1897. *British Medical Journal.* No. 1934. 1898.)

The author publishes a case of diphtheria which, as regards the persistent presence of Loeffler's bacillus, lasted 362 days. On March 11th. 1896, the illness began, and after an injection of antitoxin the membrane had almost vanished on the 16th, and the child seemed quite well. Up till August 6th virulent cultures of the bacillus were obtained (twenty-five examinations), at first in pure cultures, afterwards along with streptococci. From then till September 2nd cocci predominated, but a few short bacilli proved experimentally to be diphtheritic, were present also. On September 1st there was an acute relapse, with patches on the tonsils and B. diphtheriæ in pure culture. By September 4th, after an injection of serum (the third) the child was again cured clinically. On September 10th no bacilli were found microscopically, and the cure was thought to be complete (just six months from the beginning). and no more cultures were made. However, on October 22nd there was another acute relapse, and the short bacillus was present with streptococci. By October 28th nothing could be discovered under the microscope, and the patient, a boy aged five and a half years, was again looked upon as cured, and no further cultures were made till February 5th, 1897, when there was a third acute relapse when short bacilli and streptococci were found. These persisted after a fourth injection of serum till March 9th. From then till September, 1897, the child kept well, but, as the parents would not consent to any more bacteriological examinations it is doubtful if he were finally cured even then. Golay thinks there can be no doubt but that bacilli were never really absent. He concludes from this and other cases that (1) a fortnight's isolation after the disappearance of the false membrane, as advised in classical works, is totally inadequate; not till three or four examinations at intervals of a week have proved the complete absence of bacilli can cure be considered permanent; (2) the presence of Loeffler's bacillus between the attacks of angina does not alter the general health: (3) the prolonged presence of diphtheria bacilli after the disappearance of membrane is the rule rather than the exception, but probably this period is not so prolonged when there is an associated steptococcus infection; (4) local treatment should be abandoned entirely, as its only use is to torture the patient. In the case given above a good number of the local applications recently recommended (by Loeffler and others) were tried thoroughly without the slighest effect.

ARCHIVES OF PEDIATRICS.

VOL. XV.] AUGUST, 1898. [No. 8.

Original Communications.

THREE CASES OF AMAUROTIC FAMILY IDIOCY.*

BY A. JACOBI, M.D., LL.D.,
New York.

Sigm. Freud (*Nothnagel Spec. Pathol. u. Therap.*, Vol. ix., 2d Part, 2d Division, Page 255), in a special chapter of his work on infantile cerebral paralysis, discusses the family and hereditary forms of the latter affection. They differ in this, that sometimes more than one case will make its appearance in a single generation; in other instances, subsequent generations may exhibit the very identical or similar morbid processes. He feels justified in proposing the following classification of all the cases which may come under this head:

1st. Cerebral paralysis may occur in more than one member of a family. The cases are identical or similar in different persons and stages. Strabismus or spastic hemiplegia may be met with.

2d. Typical diplegiæ are met with in the same family or in consecutive families.

3d. Such cases as may be observed under the same circumstances, and may be defined as typical diplegia, though they differ from it to a certain extent.

4th. Such family disorders of infancy as are markedly different from infantile cerebral paralysis.

5th. The family—or hereditary—affections of later life.

Feeble intellects, with progressive muscular atrophy, were met with by Hofmann in four brothers and sisters; atrophic bulbar paralysis has been observed in families, and under hereditary influences; relapses of spinal paralysis—after recovery was complete—have also been noticed. Then there are the various forms of Little's disease—that is, paralytic conditions dating from protracted labors. There is Friedreich's disease, with tremor, oscillating gait, which is not influenced by closing the eyes, with nystagmus, and slow and monotonous articulation, but with no spasm, with extinction of patellar reflexes, with little disturbance of sensation, and with deformed foot and scoliotic spine; finally Marie's "hérédo-ataxie cérébelleuse," also (like the former) with tremor, oscillating gait, which is not influenced by closing the eyes, with nystagmus, and slow and monotonous articulation; but (to distinguish it from Friedreich's disease) with no deformities, increased reflexes, occasional contractions, and more disturbed sensation and affection of the eye muscles. All of these show the possible varieties, differences and degrees. In only a few the anatomical diagnosis can be made so correctly, as, for instance, in Friedreich's disease, which consists in a degeneration of the long spinal nerves and in smallness of the cord; or that of Marie's, in which the cerebellum is found to be reduced in size.

---

* Read before the American Pediatric Society, Cincinnati, June 2, 1898.

Under No. 2 Freud subsumes the cases of amaurotic family idiocy—a preliminary title given by Dr. B. Sachs, of New York, to a limited number of cases of a peculiar nature, which will be described hereafter. It appears to me that the classification of Dr. Freud is too indefinite to be accepted. If anything, it shows that the varieties, anomalies and alterations, both anatomical and clinical, in morbid conditions of the nervous system, which, result in or are complicated with idiocy, are too manifold, or, in many cases, too closely related to each other to permit of iron-clad boundary lines.

"Amaurotic family idiocy" is certainly exceptional in this respect, that it permits of a ready clinical diagnosis. Whether the anatomical lesions underlying all the cases, or their embryological development are identical, remains to be seen.

Dora R. was presented at my college clinic four months ago. Through a mistake of mine, or that of an assistant—certainly not through that of the gentleman who examined her eyes for him—I gained the impression that the retina showed either a plain bilateral hemorrhage or a bilateral glioma. The brief exhibition of the infant before my class, undertaken without further examination and without a history, was made for the sole purpose of presenting what I thought to be a fair illustration of Locke's dictum: *Nihil est in intellectu quod non antea fuerit in sensu*, "the road to intellect goes through the senses." It appeared to me that the defective intellectual development of the child might be due to her increasing blindness and to the corresponding lack of sensory food. When, however, the defective muscular innervation was noticed, and when Dr. Gruening saw the child and corrected my erroneous opinion in regard to the condition of the retina, the case looked different.

She was one year old, and the fourth child of healthy, not neurotic, not syphilitic, not alcoholic, Semitic parents. No hereditary taint known. Their first child was six, the second four, the third three years old; all were in perfect health. Labor was easy; no asphyxia; no convulsion. Infant was nursed by her mother until the present time, with the exception of additional meat-soup and oatmeal decoctions during the last month; was considered normal by the mother during the first few months; she did not remember, however, when the baby smiled the first time. The first tooth, a lower incisor, appeared at ten months; three upper came since; four more teeth were protruding. The fontanelle was about to close; no pulsation was felt through it. Circumference of the head, 40½ centim.; forehead rather narrow.

The infant never was able to sit alone or to hold up her head. When she was seven months old she did not notice so much or play so well as formerly; gave but little attention, cried but seldom, and slept a great deal. Some months ago spastic contraction of the upper extremities was observed repeatedly. Mother believed that during these last three months the infant noticed more, again. She felt certain that her eyes followed a light occasionally, and, at times, persons.

But her intellect was feeble when presented; she did not appear to notice, and she did not smile, except occasionally, in a listless manner. There were rhachitical curvatures with convexity outwards; the epiphyses of the radius and ulna were rather enlarged, but other symptoms of rickets were absent. There was no Harrison's groove, there was no excessive perspiration, and no falling out of hair on the occiput. The fontanelle has been mentioned as nearly closed, rather earlier than usual; but there was no hyperostosis nor anything pointing to premature ossification; no constipation. I mention the latter circumstance because the involuntary muscles, so often and badly affected in rhachitis, did not suffer here like the voluntary. These, all over the body, were flabby and inactive. Her motions were listless; her head found no muscular support; muscular contraction under the influence of electricity was insufficient. The response to faradic irritation was diminished and quite slow; a rather strong current exhibited a contraction after from one to two seconds only. Galvanic irritability was also diminished, to a certain extent the lower extremities, much more so the upper; decided reaction of degeneration. Patella reflexes were rather normal, perhaps a little exaggerated; no ancle clonus. There was some slight dulness (normal) over the manubrium sterni. Thyroid seemed normal in extent and consistency. Pupils did not, or but very slightly, respond to light, either direct or reflected; no nystagmus, no strabismus, no convulsions; heart, lungs and kidneys were normal. The shape and consistency of the eye were normal. There was a white patch with a red centre, instead of the macula lutea and beyond it; in its centre was a depressed spot. The optic disk was pale and gray.

This degeneration is the same which has been described in all the cases hitherto observed, the first time by Waren Tay and Kingdon (in the former's first cases) as early as 1881.* The fundus was found normal until after the third month; it was then that the first haziness began to show itself in the macular region. The condition became worse about the fifth and sixth months, while vision grew worse gradually, until total blindness set in.

SECOND CASE.—Lina K. was presented in my office on the 23d day of September, 1897. Father and mother were each twenty-six years of age, both of the Semitic race, and emigrated from Russian Poland. They had another girl that died at the age of one-and-a-half years, two years previously. She never was strong enough to sit up or to hold her head. She was nursed until she was fourteen months old. At that time she had her first tooth; four when she died. She had her first convulsion with nine months. During the attack she appeared to be breathless; the eyes were turned up; other spasms occurred several times a day, both in the upper and lower extremities until she died. The face began to participate in these attacks when she was fifteen months old. When Lina K., was first presented, there were no very prominent symptoms, except listlessness and muscular weakness; no convulsions. The eyes certainly followed the watch. The erroneous diagnosis of rhachitical feebleness, "pseudo-paralysis," was made, and elixir of phosphorus and the syrup of iodide of iron were ordered. On February 23d she was next seen in my service at the Vanderbilt Clinic when fourteen months old. She still appeared to follow the watch, sometimes listlessly; her hearing was good; the repeater near her ear made her start, and dilated the rather large pupils. The eyes were mostly turned upwards; the head hung back; muscular action was very slow everywhere; she never held anything in her hands. The bowels were costive, and moved hard and sluggishly only once in two days, after enemata. The left leg required a continuous current of 3, the right of 7½ milliampères for muscular contraction; the interrupted current had to be quite strong to accomplish that. There was no reaction of degeneration. For several months past she had convulsions in both arms, hands, legs and feet; convulsions and apnœa appeared to come together with pallor; the attack lasted "a few minutes," and occurred first but three or four times a week, but lately as many times during the day; also in the night. Some were accompanied with laryngismus stridulus; if they were tonic, they were followed by a tearless cry. The mother said the infant smiled when talked to, an assertion which could not be verified. Respiration was shallow, pulse 132 and regular. Fontanelle was still open. When the mouth was opened, its right angle was slightly drawn up. The characteristic change of the retina and macula lutea were looked after, and found by Dr. J. Herbert Claiborne.

---

* Since the subject has been discussed, amongst others, by Goldzieher Magnus and Knapp in 1885; by Wadsworth in 1887; by Sachs in 1887, 1896 and 1898; by Hirschberg in 1888; by Kingdon in 1892; by Carter in 1894, and lately by E. C. Kingdon and J. S. Risien Russell in the (1897) eightieth volume of the *Med. Chir. Trans.* ("Infantile Cerebral Degeneration with Symmetrical Changes at the Macula").

A brother of the above patient was, at my request, sent to me by Dr. John Huber. He was then four weeks old, May 28, 1898. Dr. R. O. Born examined the eyes for me on the same day, and reported them to be normal, so far.

THIRD CASE.—G., female, was sent by Dr. Michaelis on April 19, 1898. She was born July 30th, 1897, after a normal labor, and with only a moment's "suspended animation." She was breastfed. Two months ago, so the mother reported, the infant could not yet sit up. The only apparent disturbance of her health was a bronchitis from which she had suffered six weeks ago. Reflexes were normal; pupils of normal infant size (rather large) and equal; intellect and muscles certainly feeble. The parents —Semitic—had been married seven years before this first child was born. No miscarriages, no syphilis, some tuberculosis in the father's family. Dr. R. O. Born, whom I requested to examine the eyes for me, reported the presence of the characteristic change in the macula lutea, with no atrophy of the fundus as yet.

While these cases are presented, they are not expected to be utilized for a lengthy review of the subject; for there is a very concise story of what is known of the subject by Dr. Sachs in the third number of the *D. Med. Woch.* of this year. Inclusive of Waren Tay's first three cases, all occurring in the same family, and terminating fatally before the end of the second year, altogether twenty-seven have been published. In all of them there were the same symmetrical changes in the macula lutea, *viz.:* the white, somewhat spherical spot, with a brownish red centre, similar to what is seen in embolism of the central artery, with gradual atrophy of the papillæ, which, in 1885, were studied in our country by Knapp and by Wadsworth; the same lack of innervation as shown by weakness of intellect and of muscles, the same connection first pointed out by Kingdon (Trans. Ophth. So., xii.) of the intellectual deficiency with the characteristic eye changes, and the slow but sure increase of the symptoms. It matters little, and depends greatly on the individual powers or opportunities to observe the progress of such a case, whether there is a little more or less rolling of the eye, or increasing indolence, or reflex anomalies. The general progress and the end have been the same, *viz.:* the blindness and idiocy became complete, nutrition was impaired (marasmus is often mentioned), and a fatal termination completed the history of the cases before the end of the second year. Dr. B. Sachs observed a single case up to the sixth year. In another single case Koller found the eye symptoms to be rather late compared with the intellectual defects, and Higier the retinal atrophy more pronounced than the spot on the macula lutea.

In one of the three cases described by Kingdon and Russell in the eightieth volume of the *Med. Chir. Trans.* of 1897 there was a marked adductor spasm of the lower extremities; in another various distortions by the overaction of muscles, and overextension at the right knee. Such variations—even the occasional aural disturbances from hyperacusis to dull hearing—establish no essential difference in the general symptomatology.*

Our anatomical knowledge of the pathological changes underlying these uniform vital changes left, until a short time ago, and still leaves, much to be desired. In one of the four older autopsies the arachnoid and pia were found thickened, the cortex hard, the cerebral fissures strongly marked, the sulcus Rolando and the fissure of Sylvius confluent (always a low form of development), and the island of Reil uncovered. The pyramid cells were but rarely normal, both lateral columns have been found degenerated. In one of the three cases lately described by Kingdon and Russell there was an extensive apparent sclerosis of the pyramidal tracts, and in the pons, the medulla, and the spinal cord. They suggest that possibly many of the pyramidal fibres may never been myelinated.† Moreover the anomalies of the brain and the cord are not contiguous; indeed just as little so, as for instance, in a disseminated sclerosis in which pons and the upper part of the cord may be quite normal, while there are similar and cotemporaneous changes in the cerebrum above and the cord below. In H. Higier's case (quoted from *Deutsche Z. f. Nervenheilk,* x., 1897), which occurred in a family in which two infants had previously died from probably the same condition, there was thickening of the retina in the area of the macula, excavation of the papillæ and atrophy of the optic nerve fibres. There was no vascular disease or inflammatory process; but atrophy of the cortical pyramid cells, descending degeneration of the whole pyramidal tract, and degeneration of the motor root of the trifacial nerve and of the pedunculi cerebelli.

The chiasma was found normal. The blood-vessels were also found normal, and there were no evidences, we are told, of anything like an "inflammation," at least, such as could be traced to the blood-vessels.

Now, what is the morbid process underlying the progressive, intellectual and physical change and decline? A mere arrest of development in early embryonal life, which has not been proven, but presumed to exist by Dr. Sachs, cannot cause a *progressive* change such as is illustrated by the increase of idiocy and paralysis, and of the visible gradual alterations of the retina in a child that at first appeared normal.

---

* The internal ear does not suffer, or seldom suffers, in this disease. It is developed from the outer ectoderm, while both retina and optic nerve are, like the brain, from the medullary tube of the ectoderm.

† In all of their cases the cerebellum presented no evidence of degeneration or other change in the cells of Purkinje or those of the corpus dentatum.

The optic tissue consists primarily of radiated spindle-shaped cells which resemble the spindle-shaped cells primarily found in the early stages of the brain.

The suggestion is justified that the normal and the abnormal development of these spindle-shaped cells may go on *pari passu*, both in the embryonal eye and in the embryonal brain. Embryologists and histologists will perhaps elucidate the connection existing between the degenerative processes—which possibly is of an inflammatory nature originally—in cases like ours, and the accompanying ocular cerebral and spinal defects. To speak indiscriminately of a degenerative process pure and simple, without inflammation, either acute or chronic, is a questionable procedure as long as we are not certain or unanimous as to the essential requirements or character of "inflammation." Moreover it should be remembered, that in several instances, sclerotic processes, frequently the results of known inflammatory processes, are claimed for the cerebellum and other parts.

In connection with the definition of "inflammation," I suggest the following extracts from two sources: We read in Delafield and Prudden, a hand-book of pathological anatomy and histology, 5th Ed., 1896, p. 107: "The phenomena which are embraced under the name of inflammation are: degeneration and death of tissue; changes in the circulation of the blood; escape of the elements of the blood from the vessels; formation of new cells and new tissue. *These morbid changes either occur separately or are combined* in various ways. The growth of the body of pathogenic micro-organisms and the formation by them of toxic substances is a frequent inciting cause of inflammation;" and in *E. Ziegler Lehrb d. Allg. Pathol u. d. Pathol. Anatomie*, 9th Ed., 1898, I., p. 322, as follows (translated): "Inflammation may be caused by mechanical, thermic, electric or chemical influences, or by parasites. All these noxæ have this in common, that they produce a *local degeneration of tissue*, which —*when it is extensive or intense—is combined* with disorders of circulation and of vascular secretion." (Italics mine—A. J.)

The latter, therefore, should not be expected in every form or case of "inflammation," and to speak of degeneration in contradistinction to inflammation is rather a hazardous procedure in many instances.

The causes of an inflammation are not specific at all. Any noxa or injury may produce it, provided it be sufficiently intense to cause both degeneration of tissue and certain disorders of circulation, without producing complete interruption of circulation and necrosis of the tissues. The rapid physiological evolution of the spindle-shaped cells composing at that early period, both the optic tissue and the cerebrum furnishes the possibility of pathological alterations. Developmental over-activity in the embryo and fœtus may be looked upon from the same point of view as post-natal functional over-activity. The pathological anatomy of the newly-born heart or of the rhachitic bone or of the over-exerted muscle of young or old prove the close proximity of physiological and pathological conditions. That is why I cannot divest my mind from supposing that the degeneration which has been described as common to the few autopsies of such cases as ours was originally of an inflammatory character. Though it should be remembered, that there may be extensive cell degenerations without *marked* disorders of circulation, resulting for instance from the influence of toxins.

The thickening of arachnoid and pia and the hardness of the cerebral substances noted in one of the autopsies hitherto made, appears to point in that direction. It appears not unreasonable to suppose that the same inflammatory (proliferative, hyperplastic and by and by perhaps finally cicatrizing) process takes place in the macula lutea, or what is to *become* macula lutea.* Its late development would explain why (while undoubtedly the anatomical conditions of idiocy may be nearly developed at birth, the alterations of the macula lutea are discovered late;

---

* Macula lutea is absent from the embryonal retina ; even from that of the newly-born. According to Huschke and other older authors it is a remnant of the ocular fissure; in the opinion of many the fovea centralis represents the upper remnant of the retinal fissure. Würzburg states that the formation of the macula lutea is preceded by a duplicature—a fold of the retina; still, these duplicatures are met with in several parts of the retina. At the very spot where the fibres of the optic nerves enter in later stages, the interior of the eye, there is, according to Bergmeister, a layer of cylindrical cells during embryonal life. Here the edges of the coloboma are turned up and rarefied, while in the rest of the eye the margins join one another. In this way the physiological excavation is formed.

S. L. Schenck, Lehrbuch der Embryologie des Menschen and der Wirbelthiere, Wien, 1896, 2d Ed., p. 187.

why they gradually get more pronounced and more destructive; and why they need not always—as instanced in Koller's case—appear at a regulation time.

The child whose case was discussed before the annual meeting of the American Neurological Association of 1898, by Dr. F. Peterson, was born of a German mother twenty-eight years old, the father being a Russian, twenty-nine years old, both of the Semitic race. Their first child is seven years old and normal, the second is an idiot of five and one-half years of age that became blind at six months, the third is a normal child of four years, the fourth was observed to be blind when four weeks old and died idiotic at ten months of age, the fifth died at the Randall's Island institution when seven months and twenty days old with the symptoms of amaurotic idiocy. It was said to have played and laughed up to the third or fourth month. There were measles at five months, followed by diarrhœa; the media of the eyes were clear, the pupils equal and somewhat dilated (normal?). There was no tremor, but gradually a rotatory and up and down ocular spasm was noticed, the neck and knees became rigid, the surface exhibited some purpuric spots, and the child died. The autopsy was made by Drs. McAlpin and Ewing. The lungs showed broncho-pneumonia; the kidneys were congested; the other viscera were all normal; the liver showed some fatty infiltration; the brain weighed 22 ounces; its surface was œdematous. The condition of the two halves was identical. The cortex was deficient in cells, all of them were of minute size and moderately deficient in chromatic substance. The same condition was noticed in the motor areas. In the cervical cord the cells of the anterior horns were normal, below this normal region they were less in number and shrunken; the cells of the olives normal and abundant, of the corpora quadrigemina and geniculata less and small, those of the sympathetic ganglia of the aorta of the spinal tract, and of the optic nerve and chiasma, normal; and the connective tissue rather deficient in the brain, but not so in the spinal cord. While in the normal infant brain the cells are arranged in distinct vertebral and longitudinal columns, almost all the vertebral columns were missing, while the longitudinal rows were indistinct. Dr. James Ewing characterized the main features of the specimen as small size and small number of cells, and increased number of blood-vessels.

In the discussion following the report of this case Dr. Ward O. Holden who had examined the eyes, stated that vacuolation was found in the ganglion cells of the eyes, but the nuclei were not granular and the nucleoli were distinct while Nissl's granules were present in the cell bodies. There were no thorough changes. Moreover he stated that the results of the autopsy might be incorrect because it had been made forty hours after death. As an instance of the import of *post-mortem* changes he related that bacteria coli were found in the blood-vsssels, and from his remarks it seemed as if the diagnosis of amaurotic family idiocy might be doubted.

In the same meeting Dr. Wm. Hirsch detailed a case, the history of which was accompanied with extensive and elaborate demonstrations. There is no report which excels it in completeness and accuracy.* L. P. was seen first in July, 1896, when ten months old. It developed fairly until it was six months old. The mother, who lost two children when they were eighteen and twenty months old, respectively, reported that the child then became weaker and the muscles flabby. At that time there was some perception of light; reflexes were good, viscera normal, and the ophthalmoscopic appearance like that described above. It died July 17, 1897, and the autopsy was made four hours after death. The dura was adhering, the pia normal; there was no fluid and no œdema; no macroscopic anomaly, except a prolongation of the second temporal fissure.

Specimens were hardened in formalin 10 per cent.: one eye in formalin, one in Müller's fluid, and sections made in paraffine. Methylene, eosin, or hæmatoxylon were employed for staining purposes. The pyramidal tracts appeared degenerated as others observed them. In the cells of the anterior and posterior columns the nuclei were well defined, also the nucleoli; both of them were in many instances found near the edges of the cells. The cells were large, that is why they appeared too numerous. The motor cells were of double size, some apparently without nuclei, an impression mostly due to obliquity of section. Very few axis cylinders and dendrites. Pericellular spaces small or absent. The nuclei surrounded by a dark zone. Nissl bodies disappear entirely in a granular mass. The light area contains a fine network; few normal chromatic bodies; medulla oblongata is found in the same condition, the changes in nuclei and cells are as above; in the olivary bodies the nuclei are markedly round; in the reticulated they are oval-shaped and pushed to the extreme end of the cells. In the cells of the trifacial nerve the nucleoli are hardly recognized. In the pericellular lymph spaces there are masses of detritus. Subcortical ganglia, thalamus and cortex are in the same condition. The pyramidal cells are changed and swollen, with displaced nuclei; also Purkinje's cells of the cerebellum.

---

* Dr. Hirsch gave me his manuscript to read, and demonstrated to me in his laboratory many of his charts and microscopical specimens, and kindly gave me some characteristic ones for presentation to the American Pediatric Society. His own complete report will undoubtedly appear soon.

The points Dr. Hirsch mainly emphasizes in connection with our subject are these: All the nerve cells, as far as examined, are changed in a peculiar way. There is chromatolysis and other degeneration. The cell bodies are large. The nuclei are displaced sideways. Neuroglia and blood-vessels are normal. Differences in the accounts of previous observers are explainable by insufficient methods of hardening or staining; Müller's fluid, for instance, shows the enlargement of the body of the cell but not its finer structure. The observed changes are pretty universal; there is neither an arrest of development nor a localization in the cortex, but as Kingdon and Russell assume, an acquired degeneration.

Where is its cause? As the infant is in good condition at first and the macula normal, the cells should be considered normal. No part of the embryonal history explains the future illness, which must be acquired. As the blood-vessels are found normal the process is not inflammatory(?). No systemic disease explains all the cell changes; there is no atrophy. That is why Dr. Hirsch believes that the only possible explanation is furnished by the presence of a toxic condition, which would correspond with experimental poisoning, the effects of which on the nerve cells, and on general nutrition, are different from all other disorders. What is the nature of the toxic substance? Perhaps the examination of the mother's and the infant's blood, and that of the mother's milk, will lead to the solution of the problem. At all events, Dr. Hirsch feels like weaning such infants, or refusing the mother's breast to any baby whose family history prevents cases of the same condition.

In connection with Dr. Hirsch's paper the characteristic appearance of the macula was made the subject of discussion by Dr. Ward O. Holden. He alluded to Treacher Collins, who explained the red spots by the thinness of the retina in the fovea centralis, while round about there was, in his opinion (which, however, he doubted himself), an intense œdema. This alleged œdema is, however, found in the healthy eyes of dead persons, and may result from the following of the retina round the macula in that condition. The real cause of the red spot surrounded by white discoloration is, according to Dr. Holden, as follows: In the periphery of the retina where the cells are scattered, they are large. In the macular region they are several (6–7) layers deep and mostly small. In the peculiar degenarative process of amaurotic family idiocy these cells are of increased (double) size, and their contents dense and turbid. Hence the white discoloration. The fovea centralis has no layer of ganglion cells—hence the choroid shows through.

The atrophy of the optic nerve is always observed long after the changes in the macula lutea. It develops very gradually. According to Koller, the behavior of the children with regard to their vision was not normal at a time when no ophthalmoscopic changes were visible, so that the conclusion is permissible that vision had been impaired by cerebral degeneration. (*New York Medical Record,* July 9, 1898.)

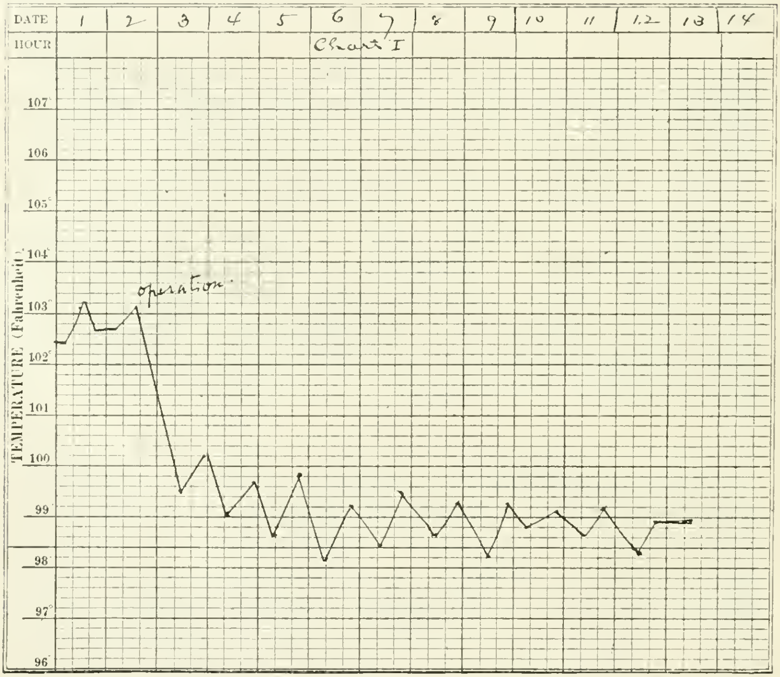
Alcohol in Childhood. J. Comby considers alcohol injurious to healthy children. In disease it is indicated in acute febrile diseases accompanied by adynamia, a tendency to cardiac collapse and to nervous depression. It is contra-indicated in chronic diseases, in diseases of the nervous system, in nephritis and all forms of albuminuria, in chronic dyspepsia, dilatation of the stomach, entero-colitis, acute dysentery, and disorders of the liver; also in acute articular rheumatism, in arthritic diseases, vesicular, pustular, or papular dermatoses, and in acute endo- and peri-carditis. It must not be given in conditions of anemia, languor, and weakness; and this applies to the various alcoholic tonics advertised so generally. To avoid all irritating action alcohol should be prescribed for children in a syrup of some kind or in milk, etc. Even wines should not be given undiluted.—*American Journal of Obstetrics.*

THE SIGNIFICANCE OF FEVER FOLLOWING OPERATIONS FOR PYOTHORAX.*

BY AUGUSTUS CAILLÉ, M.D.,

Professor of Diseases in Children, Visiting Physician to the New York Post-Graduate and German Hospitals, etc., New York.

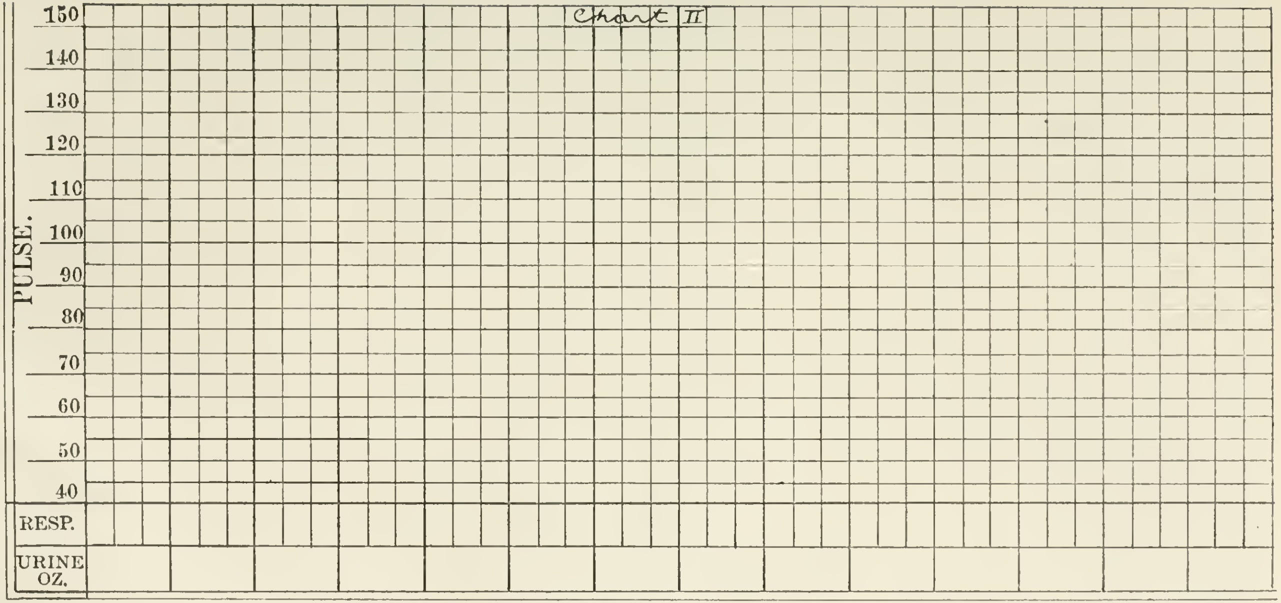
Assuming that in a given case of pyothorax the proper surgical procedure has been accomplished we might expect, where the temperature has been high before operation, a fall of temperature and a normal or nearly normal temperature curve during convalescence. It is well known, however, that on the contrary and in a large number of cases, a rise from the normal takes place at once or at various times during the further course of the disease and as this fever temperature almost invariably indicates



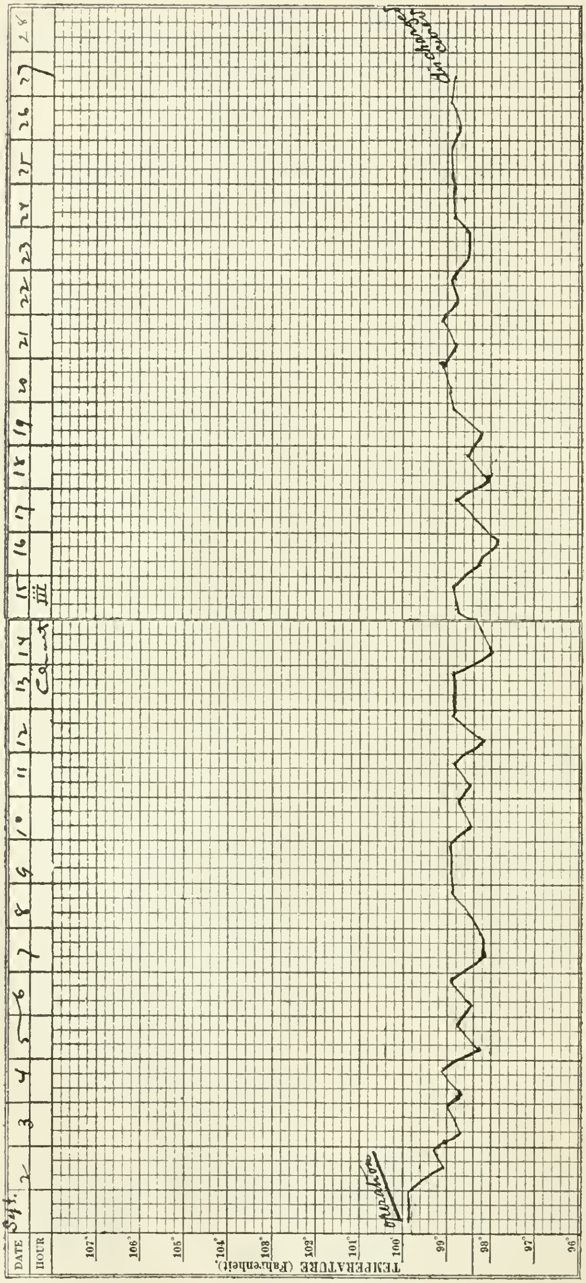
I. B. ———. BOY FOUR YEARS OLD. ACUTE PYOTHORAX OF RIGHT SIDE. RESECTION OF RIB AND DRAINAGE. NORMAL TEMPERATURE ON THE DAY FOLLOWING THE OPERATION. REMOVAL OF DRAINAGE TUBE ON THE FIFTH DAY AND COMPLETE CLOSING OF THE WOUND ON THE NINTH DAY. NO FEVER TEMPERATURE AT ANY TIME AFTER OPERATION.

---

*Read before the American Pediatric Society, Cincinnati, June 2, 1898.

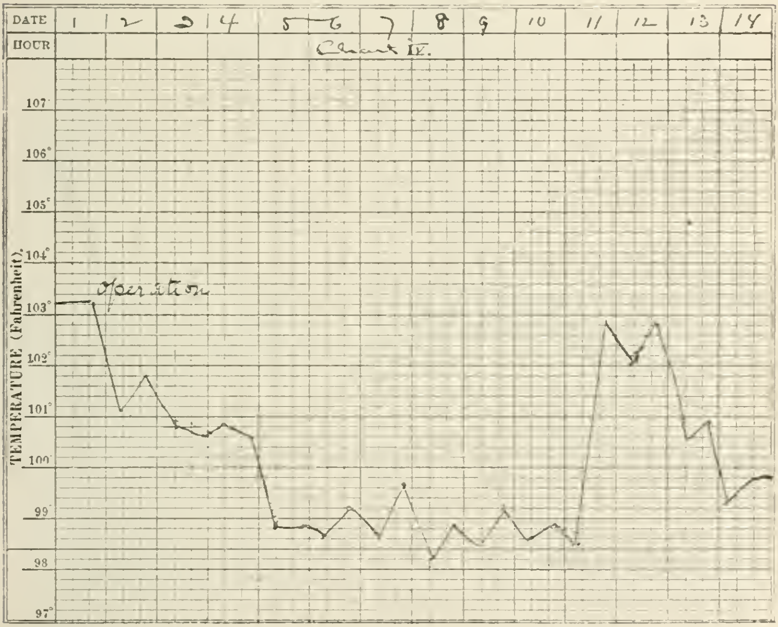


II. A. L. ——. AGED TWO YEARS. THIS PATIENT HAD NO FEVER TEMPERATURE BEFORE OR AFTER OPERATION, AND WAS DISCHARGED CURED ON THE SIXTEENTH DAY FOLLOWING RESECTION AND DRAINAGE.



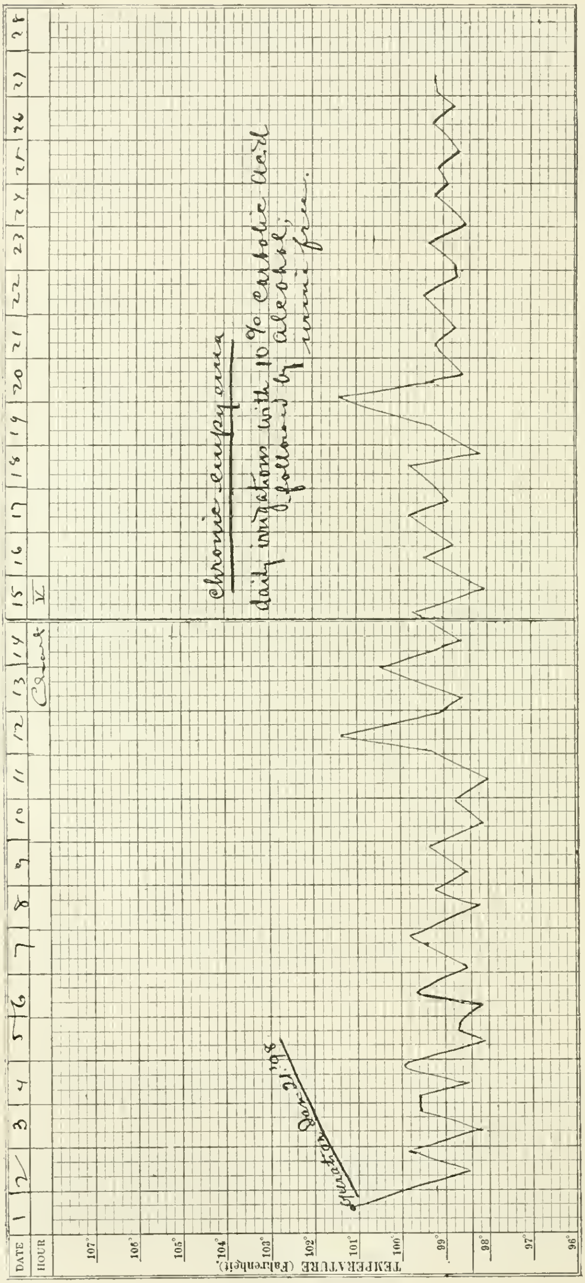
III. I. M. MALE. NO RISE OF TEMPERATURE ABOVE NORMAL IN TWENTY-SEVEN DAYS.

an extension of the disease or a complication of some kind, grave or trivial, it becomes a matter of great importance to correctly interpret such fever and remove any source of irritation if present, and if possible, to remedy, before the patient is exhausted. The correct interpretation of fever after empyema operation is, in some instances, extremely simple, and in others extremely difficult—so that it is nothing unusual for surgeons with but little clinical experience to inquire simply into the matter of drainage and, if such appears satisfactory, to overlook other factors equally important.



IV. J. B. BOY OF FIVE YEARS. IN THIS CASE THE TEMPERATURE BECAME NORMAL ON THE FOURTH DAY AFTER RESECTION. ON THE ELEVENTH DAY AFTER OPERATION A RISE TO 103° F. WAS NOTICED, AND ON EXAMINATION IT WAS FOUND THAT THE DRAINAGE TUBE HAD SLIPPED INTO THE THORACIC CAVITY. AFTER RECOVERY OF THE TUBE THE TEMPERATURE FELL AND REMAINED NORMAL.

With a view of eliciting discussion on this subject before the American Pediatric Society, the writer has carefully followed the histories of eighty-six private cases and also the cases treated in the Babies' Ward, Post-Graduate Hospital, and others operated upon in the children's clinics of the school, in all about three



V. L. B. A GIRL OF SEVEN YEARS. THIS PATIENT HAD HAD THREE OPERATIONS FOR PYOTHORAX BEFORE ENTERING THE POST GRADUATE HOSPITAL. A FOURTH OPERATION WAS PERFORMED AND THE ABSCESS CAVITY WAS IRRIGATED WITH 2 PER CENT. CARBOLIC ACID WATER AND SUBSEQUENTLY WITH 10 PER CENT. CARBOLIC ACID SOLUTION AND ALCOHOL. NO INTOXICATION SYMPTOMS WERE NOTICED AND A STEADY IMPROVEMENT TOOK PLACE.

hundred cases. An endeavor will be made to show in a brief manner in what extent a careful study of body temperature will aid us in establishing the causative factor in fever temperatures, following operations for pyothorax.

It may be admitted at the outset, that a completely afebrile course is exceptional. Charts I., II., and III. will illustrate that small group of cases in which the temperature drops to normal after operation, and remains about normal. Such cases are not of long standing, and the pus is localized by adhesions and the healing process is a rapid one.

In chart IV., the otherwise normal temperature curves shows an elevation eleven days after operation, due to irritation of a lost drainage tube, which had accidentally slipped into the pus cavity of the thorax. If drainage from the pus cavity is interfered with in consequence of granulations or from other causes, a rise of temperature will almost invariably result.

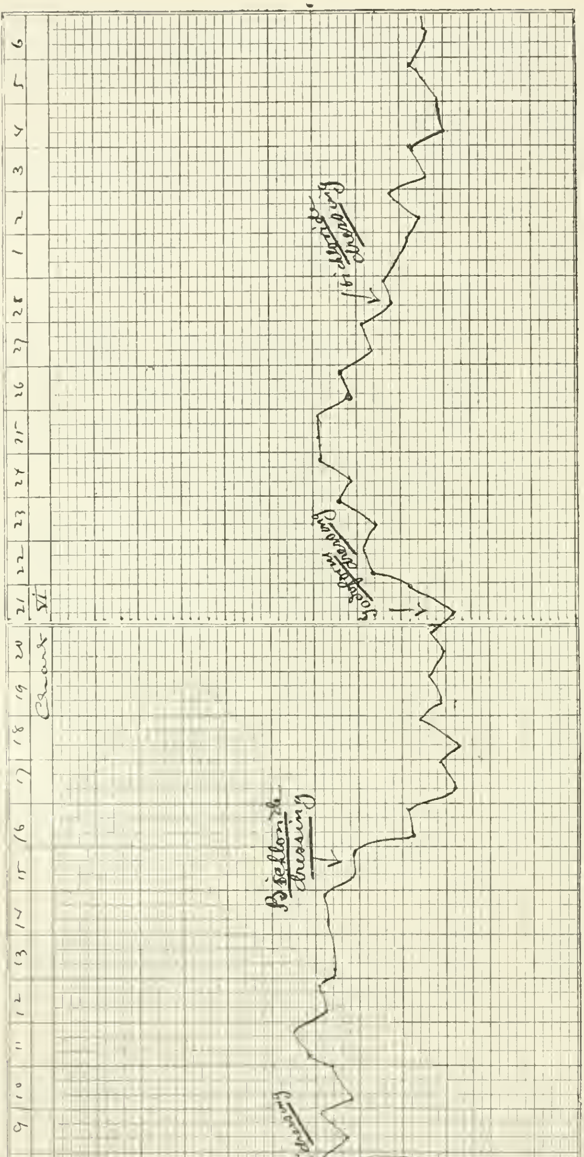
Instances of a rise of temperature from intoxication with *iodoform* or *carbolic acid* are not rare, and are sufficiently characteristic to be readily detected. Carbolic acid produces the well-known smoky urine with some fever. Irrigation of the abscess cavity is practiced but very little, and carbolic acid is not employed much for this purpose except in special cases.

As an evidence of the tolerance of carbolic acid, owing to the non-absorbing condition of a thick membrane, I present chart V., which shows an almost normal temperature, free urine and steady improvement in a case of chronic empyema of long standing in a girl of seven, whose thoracic abscess was irrigated with 10 per cent. carbolic acid solution and pure alcohol daily for a long period.

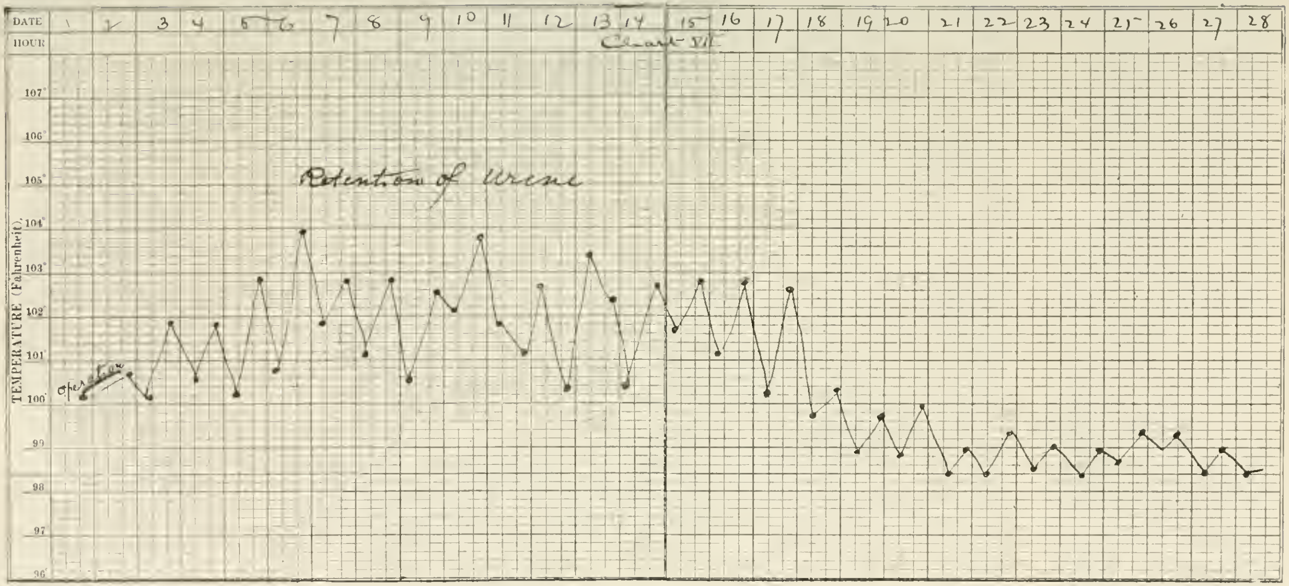
To illustrate the toxic effects of *iodoform,* I present chart VI. This complication may be recognized by fever, nausea or vomiting and frequently a scarlatiniform rash, all symptoms disappearing when the drug is no longer used.

The cases showing a rash are very much like true scarlatina, and it is not always possible to distinguish one from the other, for we find a punctate and accuminated rash in true scarlatina as well as in intoxication rashes.

Chart VII. illustrates a case in which retention of urine was the obvious cause of a fever temperature. The rise in temperature took place right after the operation, and a retention of urine necessitated the use of the catheter twice daily for eleven days.



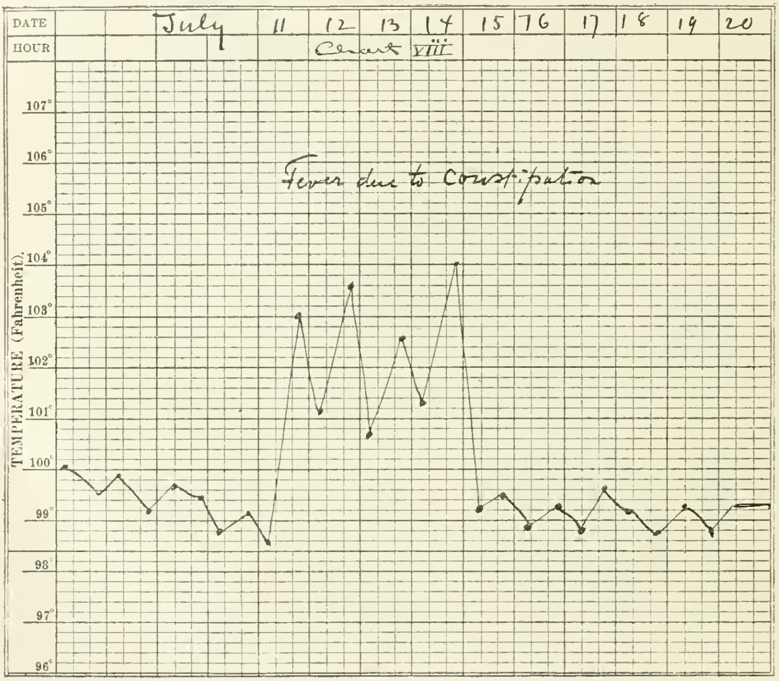
VI. A. G. FOUR YEARS. OPERATION FEBRUARY 7TH, FOLLOWED BY RISE OF TEMPERATURE, NAUSEA, VOMITING. IODOFORM DRESSING DISCONTINUED AND BI-CHLORIDE DRESSING SUBSTITUTED, FEBRUARY 14TH. THE TEMPERATURE SOON BECAME NORMAL AND THE CHILD TOOK FOOD. FEBRUARY 21ST THE IODOFORM DRESSING WAS AGAIN APPLIED AND THE SAME PHENOMENA WERE OBSERVED. THE IODOFORM DRESSING WAS DISCONTINUED AGAIN ON FEBRUARY 26TH, AND THE CHILD AFTERWARDS DID WELL. BETWEEN THE 21ST TO 20TH OF FEBRUARY A PUNCTATE SCARLATINIFORM RASH WAS ALSO NOTICED. THERE WERE NO THROAT SYMPTOMS AND SUBSEQUENTLY NO DESQUAMMATION.



VII. M. D. A GIRL OF THREE YEARS. THE TEMPERATURE ROSE AFTER THE OPERATION AND RETENTION OF URINE WAS NOTICED WHICH NECESSITATED THE USE OF THE CATHETER TWICE A DAY FOR ELEVEN DAYS. ON THE TWELFTH DAY THE TEMPERATURE DROPPED TO NORMAL AND THE CATHETER WAS NO LONGER NECESSARY. DURING THE TIME THERE WAS GOOD DRAINAGE FROM THE THORAX AND NO COMPLICATIONS. THE REMOVAL OF THE DRAINAGE TUBE HAD NO INFLUENCE UPON THE TEMPERATURE. THERE WAS EVIDENTLY SOME OBSCURE CONNECTION BETWEEN THE FEVER AND THE RETENTION OF URINE. THERE WAS NO MALARIA.

On the twelfth day, the urine was passed voluntarily and the temperature dropped to normal. During this time there was good drainage from the thorax and no complications could be detected. The bladder was not infected, the removal of the drainage tube had no influence upon the temperature; there was no malaria nor nephritis, but evidently some obscure connection between the fever and retention of urine.

Constipation as a cause of fever is well illustrated by chart VIII., in which case an operation for pyothorax was performed on June 9, 1895, with a normal temperature until July 11th, then high fever with constipation for four days and normal temperture and normal convalescence after a brisk purge.

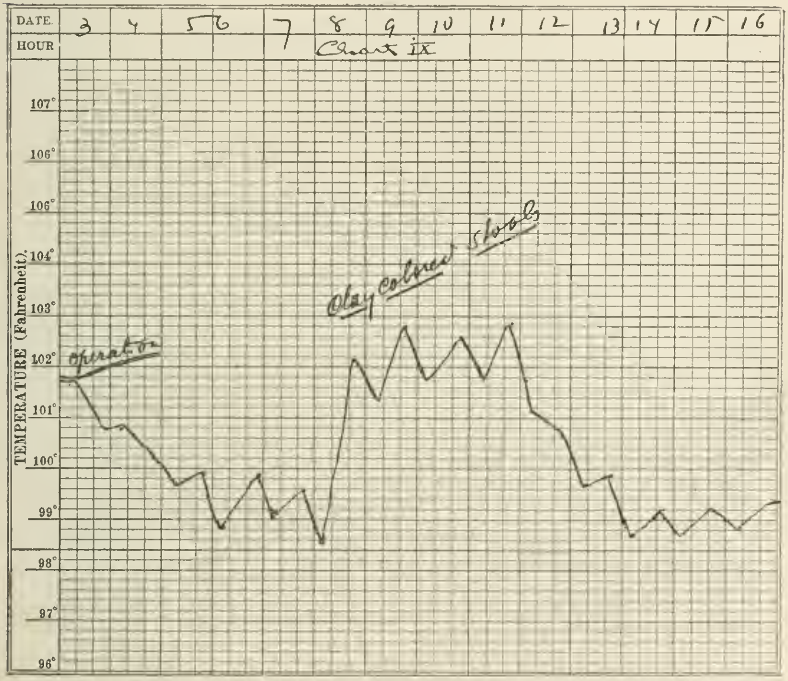


VIII. R. B. A GIRL OF FIFTEEN MONTHS. OPERATION JUNE 19, 1895. NORMAL TEMPERATURE UNTIL JULY 11TH. FOUR DAYS' FEVER DURING CONSTIPATION AND AFTER A BRISK LAXATIVE A FALL OF TEMPERATURE TO NORMAL, WITH NORMAL CONVALESCENCE.

In the case of James Curtis, four and one-half years old, a rise of temperature was noticed simultaneously with the appearance of clay stools and a jaundiced color (chart IX), all of which rapidly disappeared.

Secondary and extra thoracic abscesses as a cause of fever are frequently met with and I have quite a list of such cases, small and large abscesses developing in axilla, buttocks, groin, parotid gland, also extra pleural abscesses and otitis media.

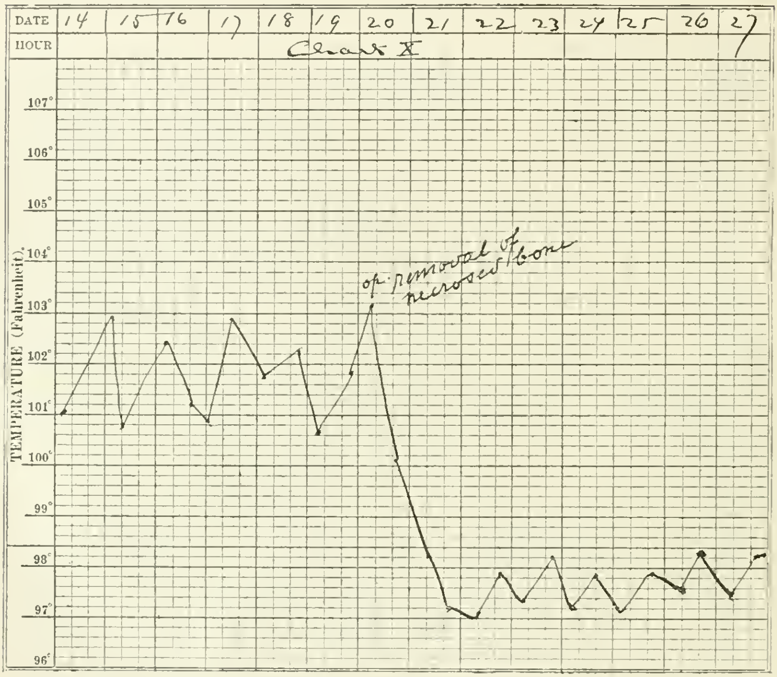
To illustrate this group, I will cite the case of S. S., whose temperature range is shown by chart X. She underwent operation at the age of two years for pyothorax, and remained well for three years, when she developed pyothorax of the same side and had irregular fever from September, 1897, to January 20, 1898, on which day a portion of necrosed rib was removed and the patient made a rapid afebrile recovery.



IX. J. C. INCISION FOR PYOTHORAX, JANUARY, 1897. RESECTION OF RIB, FEBRUARY 3D, AFTER WHICH THERE WAS NORMAL TEMPERATURE UNTIL FEBRUARY 8. MODERATE FEVER FOR THREE DAYS, WITH SYMPTOMS OF GASTRIC DISTURBANCE AND CLAY COLORED STOOL.

To this group also belong two cases of extra thoracic abscess in the axillary region in which, after incision, no fall of temperature took place. A more careful examination elicited the presence of pyothorax of the same side which had been overlooked. Sub-diaphragmatic and lung abscesses consequent upon pyothorax are also met with, but present no characteristic fever curve.

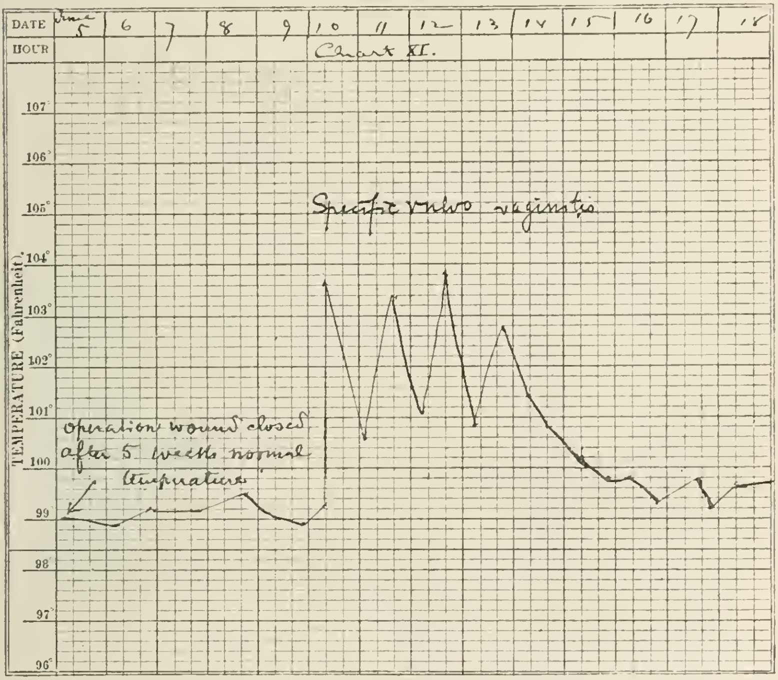
We now come to consider a group of cases in which convalescence is disturbed by a distinct specific infection or contagion, such as measles, scarlatina, erysipelas, diphtheria, specific vulvovaginitis, and the following charts will illustrate some of the conditions here cited:



X. S. S. A GIRL OF FIVE YEARS. REMOVAL OF NECROSED RIB SECONDARY TO EMPYEMA, FOLLOWED BY FALL OF TEMPERATURE AND NORMAL CONVALESCENCE. AT THE AGE OF TWO THIS PATIENT HAD PYOTHORAX OF THE SAME SIDE, FOR WHICH AN OPERATION WAS PERFORMED AT THE POST GRADUATE HOSPITAL, AND WHICH HEALED COMPLETELY. THREE YEARS AFTER THIS ATTACK, A SECOND ATTACK ON THE SAME SIDE TOOK PLACE, AS NOTED ABOVE.

Chart XI. J. F. four years old. After five weeks of nearly normal temperature, the operation wound closed June 5th. On June 10th a sudden fever temperature, lasting four days, was noticed, and a most careful examination at first failed to locate the source of fever. Finally an offensive purulent vulvo-vaginal discharge was detected containing gonococci. The parts were inflamed and bleeding to the touch, and energetic local treatment was followed by local improvement and defervescence.

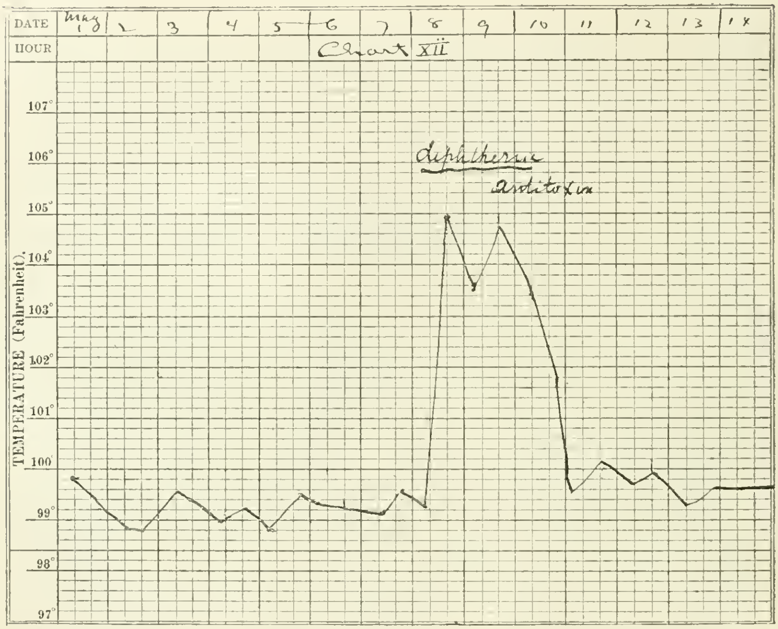
Chart XII. shows a diphtheritic infection in a case of pyothorax—G. B., eighteen months. Operation April 19. On May 8th a sudden rise of temperature to 105° F. was noticed, due to diphtheritic sore throat, which subsided promptly after administering 1,000 units of antitoxin, the temperature thereafter remaining normal.



XI. J. F. A GIRL OF FOUR YEARS. AFTER FIVE WEEKS' NORMAL TEMPERATURE THE OPERATION WOUND CLOSED JUNE 5TH. ON JUNE 10TH A SUDDEN FEVER TEMPERATURE LASTING FOUR DAYS WAS NOTICED. ON CAREFUL EXAMINATION IT WAS FOUND THAT A SPECIFIC VULVO-VAGINITIS WITH INTENSE INFLAMMATION OF THE PARTS WAS RESPONSIBLE FOR THE FEVER, WHICH SUBSIDED AFTER APPROPRIATE LOCAL TREATMENT WAS INSTITUTED.

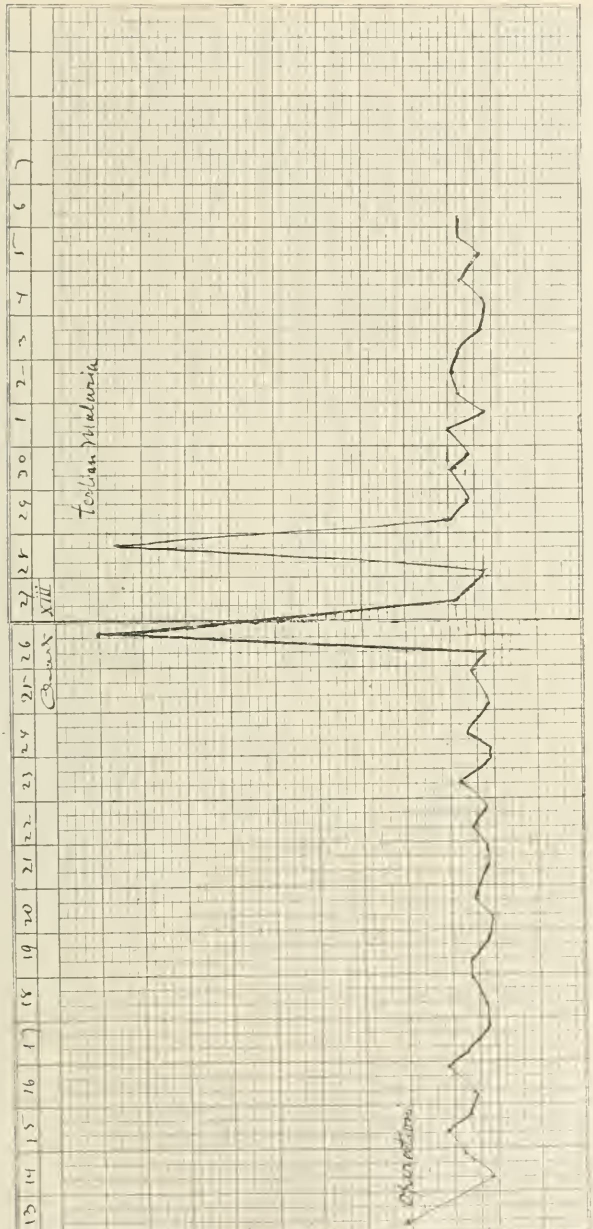
Chart XIII. shows a typical malarial febrile attack. The patient, a boy three years old, was operated upon for pyothorax April 13, 1897, and ran a very normal temperature to the 26th of April, when 107° F. was registered, followed by a drop to 98° and a rise to 106° on the 28th. A tertian malaria which was suspected of the plasmodium, was found in the blood. After the second rise, a few doses of quinine produced the specific effect.

Chart XIV. illustrates an eruption of measles during the convalescent stage of pyothorax. W. K. was operated upon May 17, 1895, and showed no marked elevation of temperature until June 21st, when his temperature rose to 104°. It ranged from 101° to 104° daily, and on the 27th an eruption of measles was noticed, with some cough. One of the peculiarities of measles infection, according to the experience of the writer, is that *the temperature curve in the pre-eruption stage of measles may show a remission to normal or sub-normal at irregular periods on the febrile days preceding the eruption, as shown in chart XV.* The knowledge of this fact is important as regards early recognition and isolation of the patient.



XII. G. B. A BOY OF EIGHTEEN MONTHS. OPERATION FOR PYOTHORAX, APRIL 19TH. NORMAL CONVALESCENCE. MAY 8TH, SUDDEN RISE OF TEMPERATURE TO 105° F., DUE TO TONSILLAR DIPHTHERIA. ANTITOXIN WAS ADMINISTERED AND THE TEMPERATURE BECAME NORMAL MAY 11TH, AND REMAINED NORMAL.

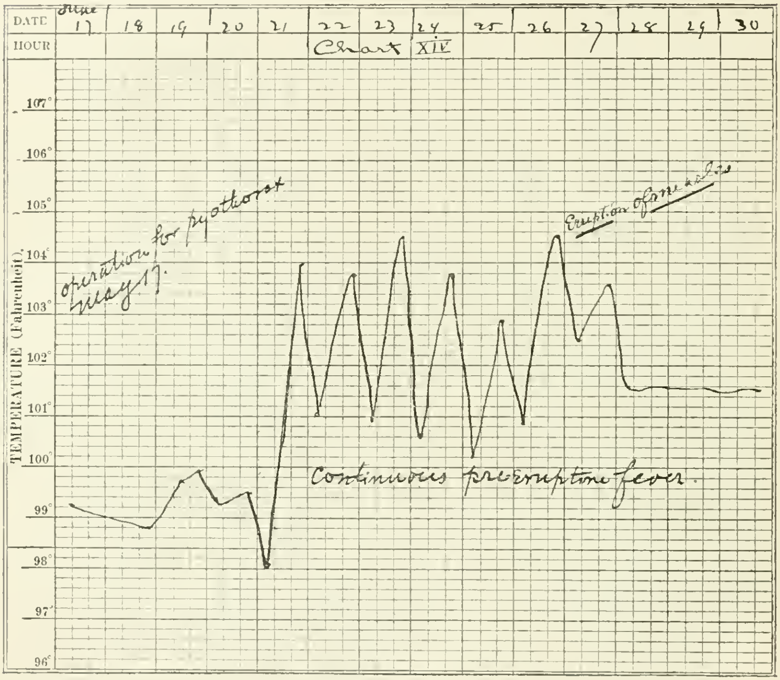
As the temperature charts of pyothorax cases with scarlatina and erysipelas offer nothing particularly characteristic, it is un-



XIII. J. M. A BOY OF THREE AND A HALF YEARS. · MALARIAL INFECTION DURING THE CONVALESCENT STAGE OF PYOTHORAX. PLASMODIUM FOUND.

necessary to reproduce them here. However, it may be stated that the recognition of complications presented in this group is made without any difficulty, because the characteristic rash or throat exudate will make its appearance within two to six days from the time of the temperature rise. In the absence of a culture test, we are not able to distinguish positively a mild case of scarlatina from a scarlatiniform rash.

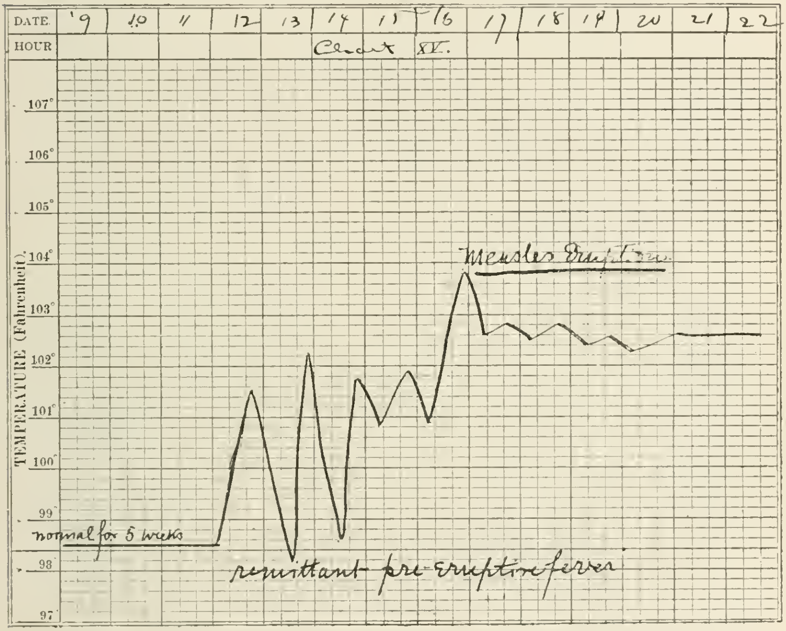
We will now consider that class of cases in which there is but a slight remission of fever after operation and where we may have an extension of the inflammatory process to the other side of the chest, or to the pericardium, or peritoneum, or concomitant lobar, broncho or tuberculous pneumonia.



XIV. W. K. MALE. OPERATION MAY 17, 1895. NORMAL TEMPERATURE TO JUNE 21ST, ON WHICH DAY THERE WAS A RISE TO 104° F., AND SLIGHT COUGH. JUNE 26TH, ERUPTION OF MEASLES.

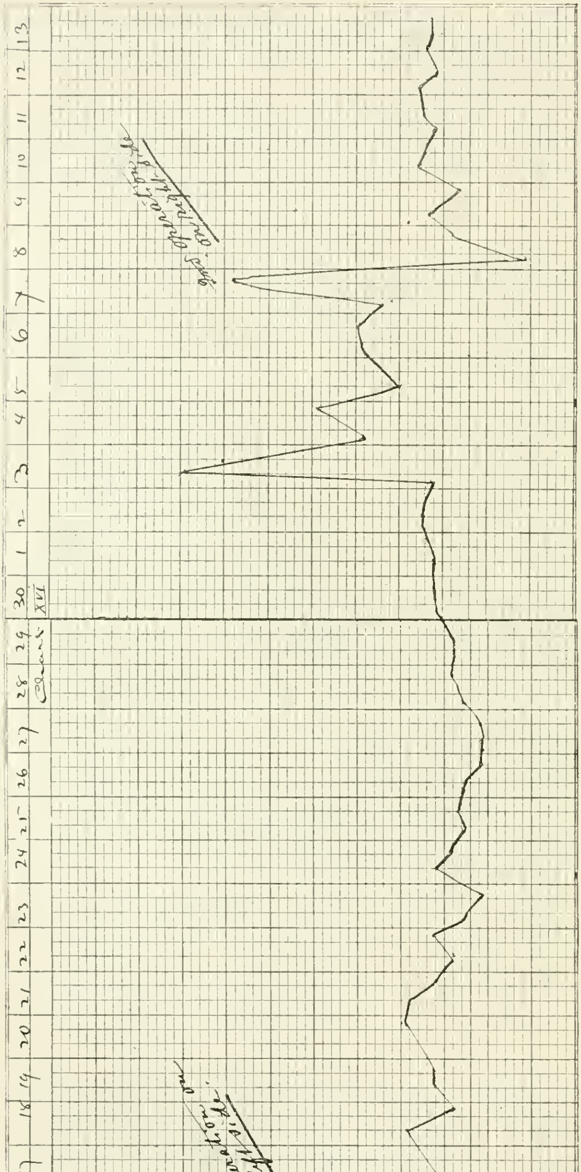
Chart XVI. illustrates the bilateral invasion of the chest in a boy three years old (G. L.), who was operated upon for left-sided pyothorax, September 13th, the temperature remaining low until October 3d, on which day a rise to 105° was registered with renewed rapid respiration. The aspirating needle showed sero-pus on the right side and a second operation was followed by a drop to the normal.

A similar case is that of R. D., eighteen months old, *Chart XVII.* In this case a rapid invasion of both sides took place first right and then left, with but a few days intermission between the attacks, as shown by the temperature curve. In all such cases



XV. M. R. A GIRL OF FIVE YEARS. NORMAL TEMPERATURE FROM NOVEMBER 6TH TO DECEMBER 12, 1897. ON DECEMBER 12TH, RISE OF TEMPERATURE FROM 97½° TO 101½° AND DROP TO NORMAL ON THE FOLLOWING DAY, AND REPETITION OF THE SAME PHENOMENON ON THE NEXT DAY, AFTER WHICH THERE WAS CONTINUOUS FEVER TILL DECEMBER 16TH, ON WHICH DAY THE ERUPTION OF MEASLES APPEARED, THUS SHOWING THAT IN THE INCUBATIVE OR PRE-ERUPTIVE STAGE OF MEASLES THE FEVER MAY DROP TO THE NORMAL AT DIFFERENT TIMES OR IT MAY SHOW THE CONTINUOUS TYPE, AS IN CHART XIV.

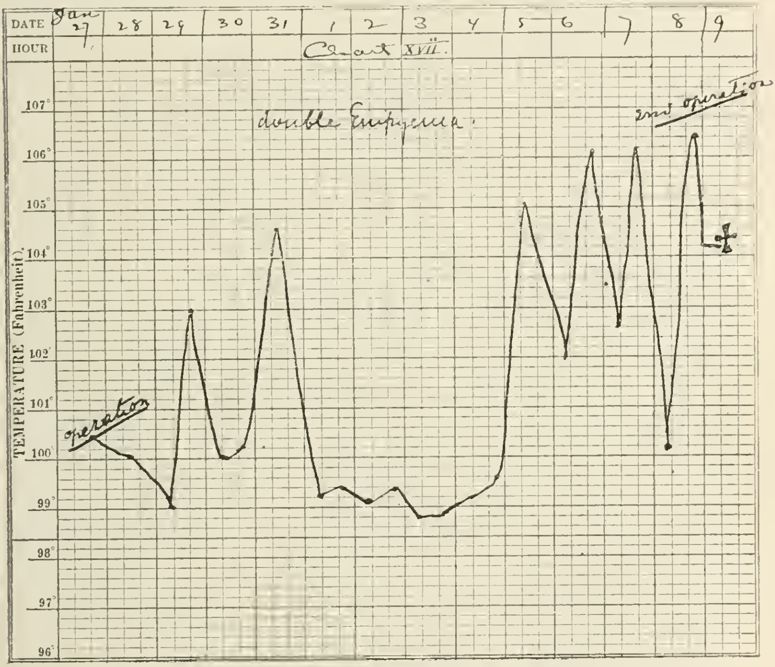
the fever and rapid respiration and physical signs of fluid will readily establish the diagnosis which is confirmed by the aspirating needle. *To correctly interpret those cases in which the fever is kept up by a complicating unresolved lobar pneumonia or broncho-pneumonia or tubercular pneumonia is by no means easy, particularly if dense adhesions are present and give dulness on percussion.* The unresolved lobar pneumonia will give dulness



XVI. Z. L. THREE YEARS. DOUBLE EMPYEMA. ONE OPERATION SEPTEMBER 16, 1894. NORMAL CONVALESCENCE AND LOW TEMPERATURE UNTIL OCTOBER 3D. ON THIS DAY A RISE OF TEMPERATURE TO 105° OCCURRED AND RENEWED EMBARRASSMENT OF RESPIRATION, WITH GOOD DRAINAGE ON THE OPERATED SIDE. THE RIGHT THORAX WAS FOUND FULL OF SERO-PUS, AND AFTER ITS REMOVAL THE TEMPERATURE DROPPED TO SUBNORMAL.

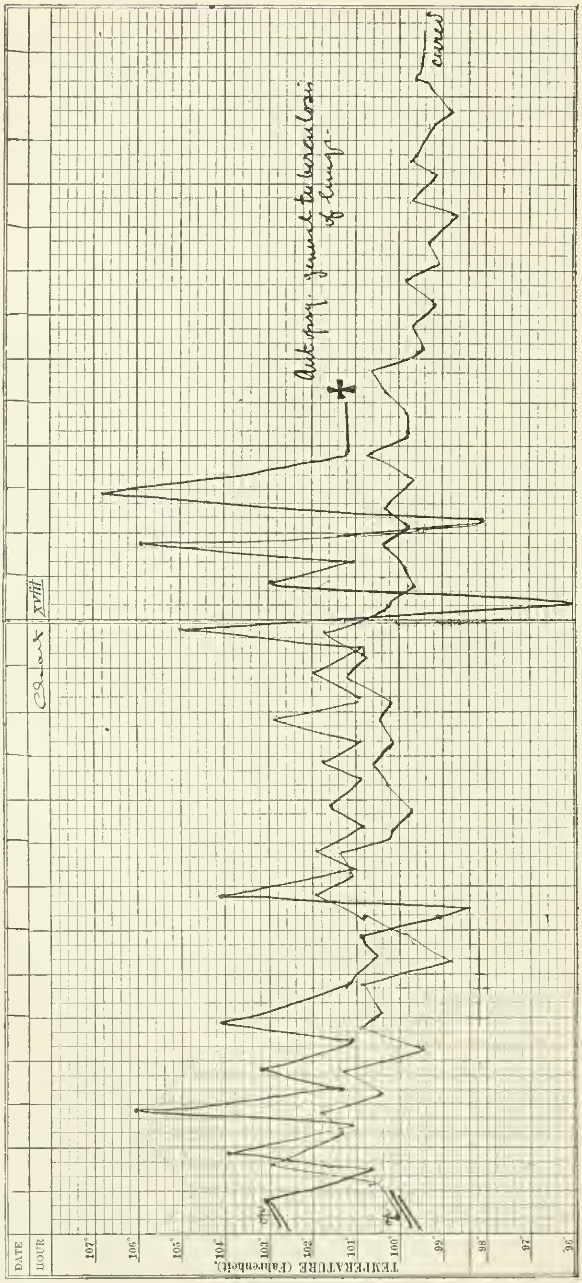
and bronchial breathing and the temperature will not be as high as in the other varieties just cited.

To distinguish a broncho-pneumonia from a general pulmonary tuberculosis by physical signs and symptoms in the absence of bacillary proof, is rarely possible. A pulmonary miliary tuberculosis may be suspected from the high septic temperature, rapid breathing, diarrhœa, loss of weight. A careful and repeated examination of the pus in tuberculous pyothorax will occasionally reveal the presence of tubercle bacilli.



XVII. R. D. A BOY OF EIGHTEEN MONTHS. OPERATION ON RIGHT SIDE, JANUARY 27TH. FEVER CONTINUED BUT RESPIRATION DROPPED FROM 72 TO 32 FROM DAY OF OPERATION TO FEBRUARY 6TH, ON WHICH DAY THE RESPIRATION ROSE TO 76 AND THE TEMPERATURE BECAME VERY HIGH. THERE WAS GOOD DRAINAGE ON PRIMARY SIDE BUT THE LEFT SIDE NOW FILLED WITH SERO-PUS, WHICH WAS EVACUATED. THE PATIENT DIED ON FEBRUARY 9TH.

In the following, *Chart XVIII.*, the temperature curves of tuberculous pyothorax and empyema with unresolved pneumonia are shown together for comparison. *It will be noticed that the excursions of the mercury are much greater in tuberculous pyothorax than in that form complicated with unresolved pneumonia, and the average fever curve is higher, and the writer has*



XVIII. DOUBLE TEMPERATURE CHART SHOWING PYOTHORAX WITH UNRESOLVED PNEUMONIA OF SAME SIDE AND PYOTHORAX WITH PULMONARY TUBERCULOSIS.

found this relative difference in the temperature curve almost constant in similar cases. *Chart XIX.* is another illustration of the peculiar temperature curve in tuberculous pyothorax.

The temperature curve in pyothorax with putrid bronchitis or gangrene of lung is not different from that of any septic temperature curve, although the writer has seen three such cases in which the temperature was almost normal under free drainage, the discharging pus and sputum being brownish in color and extremely offensive to the smell.

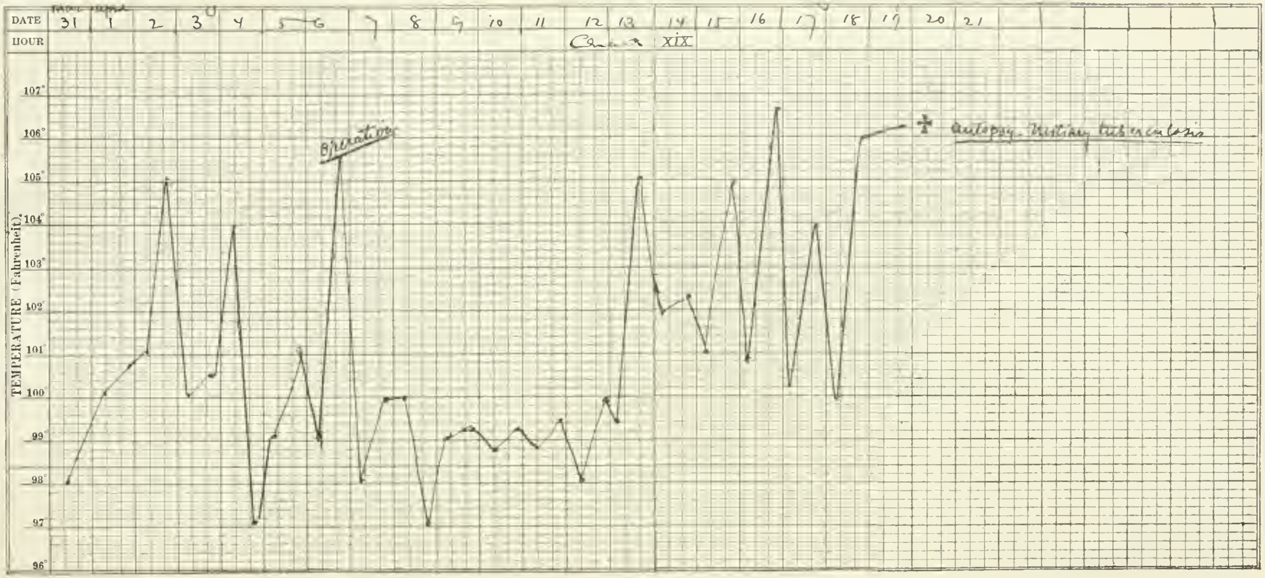
In cases of tuberculosis of the lung with pulmonary abscess of long standing, with subsequent formation of an empyema, there is usually no satisfactory drop of temperature after operation, and in *chronic empyema with a localized abscess cavity and insufficient expansion of the lung in consequence of adhesions an afebrile course may persist for a long time if drainage is sufficient, but finally the pus microbe will infect other organs, the kidney and intestines, such complication presenting sufficient symptoms in addition to the rise of temperature to make them easy of recognition. Cases of this nature terminating fatally often show amyloid degeneration on autopsy.*

Chart XX. illustrates a case of pyothorax which did well for four weeks and suddenly developed a high temperature and a bloody diarrhœa, with 20 per cent. albumin by bulk in the urine.

There is another variety of pyothorax cases which may be termed the acute septic cases, as frequently met with in very young children. *Charts XXI. and XXII.* will illustrate such conditions: L. S., two years old, was operated upon November 27th, and on November 29th pus was found on the other side of the thorax and also removed by incision. The temperature was 104° at the operation and remained high till death. The autopsy showed besides bilateral pyothorax, broncho-pneumonia in both lungs and acute nephritis.

The next, *Chart XXII.*, shows the acute septic course of pyothorax in a very young child. The writer has observed eight cases below the age of six months. Such patients rarely recover, even with good drainage and good lung expansion. A high septic temperature usually persists and pulmonary œdema ends the scene.

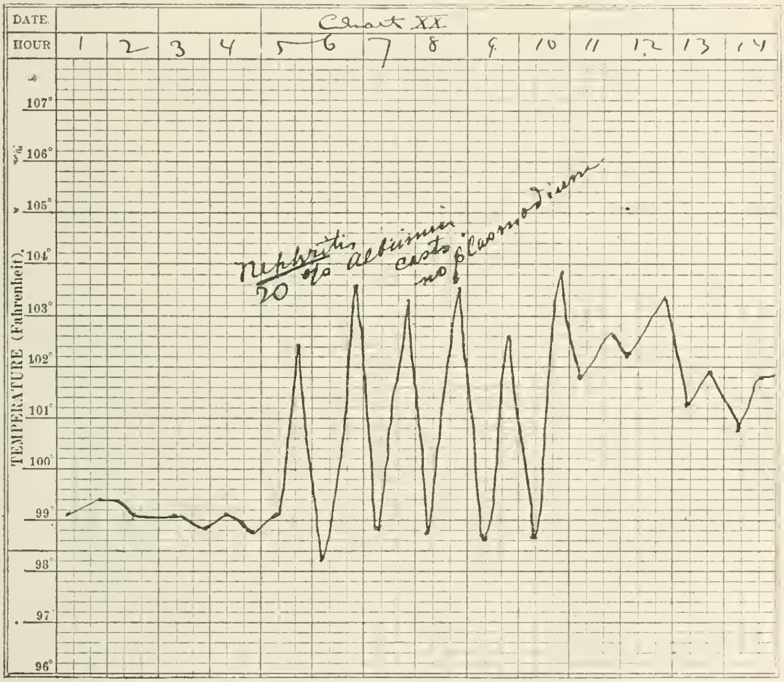
To this category of septic cases, also belongs the following: H. S., fourteen months; operation November 26th. A normal temperature, irregular slight fever until December 21st, on which



XIX. M. F. A GIRL OF SEVEN WEEKS. VERY HIGH TEMPERATURE BEFORE OPERATION. AFTER OPERATION FOUR DAYS OF AFEBRILE TEMPERATURE, THEN HIGH FEVER AGAIN UNTIL DEATH. THE PULMONARY SYMPTOMS WERE THOSE OF BRONCHO-PNEUMONIA. THE TEMPERATURE CURVE SPEAKS FOR TUBERCULOSIS, WHICH WAS FOUND AT AUTOPSY.

day the temperature rose to 105°. The color of the pus changed to green and the culture test showed the presence of the bacillus pyo-cyaneus. There was no pulmonary complications and no diarrhœa, but some vomiting, and death resulted. No autopsy. The infection by the green pus microbe must be looked upon as the cause of the high septic temperature.

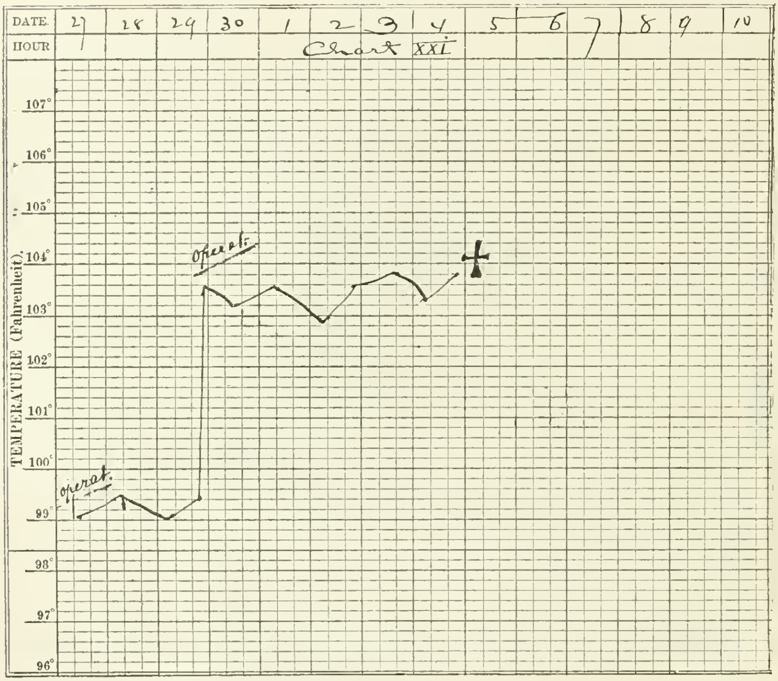
Tubercular and cocci meningitis is occasionally met with as a complication of pyothorax. The accompanying temperature is not sufficiently characteristic to establish diagnosis, which, however, may be arrived at by a study of the objective manifestations.



XX. L. T. A BOY OF FOUR YEARS. OPERATION APRIL 14, 1898. TEMPERATURE NORMAL TILL MAY 5TH, WHEN FEVER, WITH DAILY REMISSION TO NORMAL, APPEARED, WITH 20 PER CENT. BY BULK ALBUMIN IN URINE, AND BLOODY CASTS AND BLOODY DIARRHŒAL STOOLS.

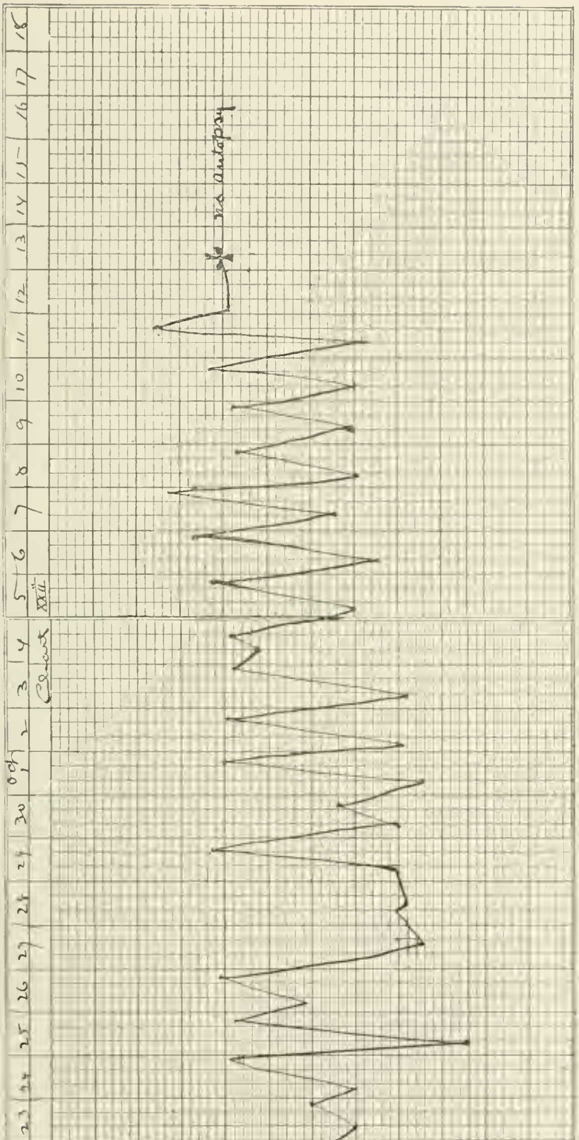
We now come to the most important class of cases from the practical standpoint in which, after operation, thorough drainage and no appreciable complications, the irregular septic temperature persists, is due to *deep seated multilocular accumulation of pus* or abscesses not reached by the primary operation.

Of such cases not a few have come under the writer's notice, some in which the condition was recognized at the time of operation and a few in which after operation, notwithstanding good drainage and no complications and fair general condition, the temperature would rise to 103° or 104° at irregular intervals. In one instance even the aspirating needle in the hands of three very able physicians and surgeons and introduced at various times in the course of three weeks, failed to detect a deep seated pus deposit, which was strongly suspected and which finally found its way to the chest wall, where it was eventually recognized and drained four weeks after the first operation, after which the temperature fell and remained normal.

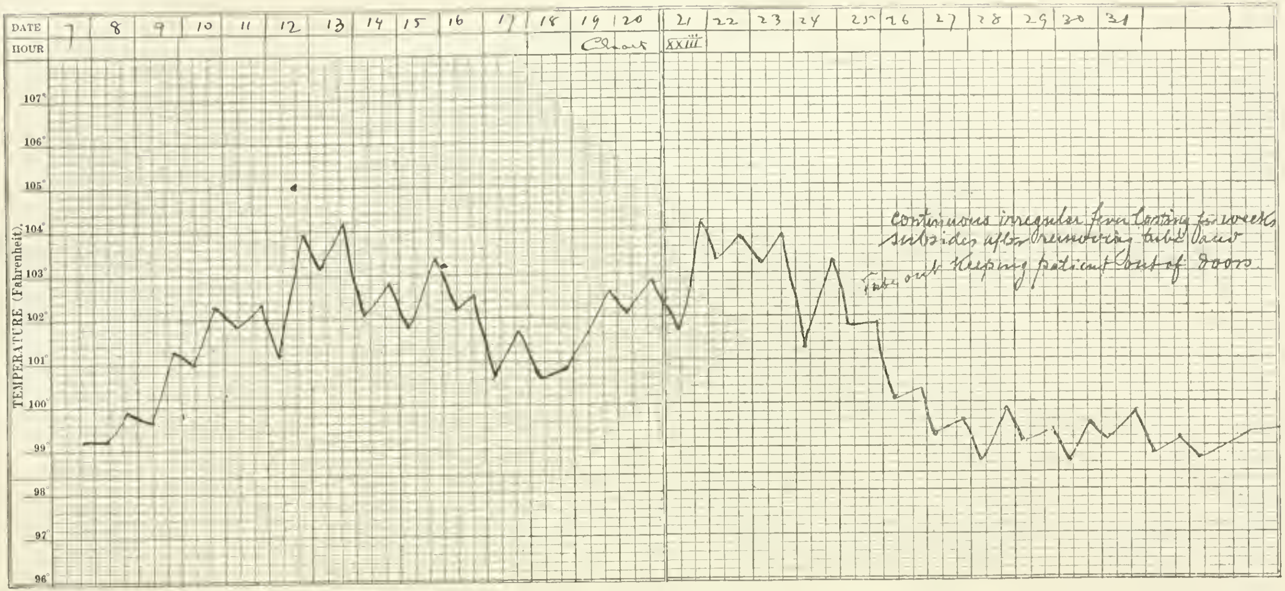


XXI. L. S. A BOY OF TWO YEARS. DOUBLE PYOTHORAX; ACUTE SEPSIS; DEATH AND AUTOPSY FOUR DAYS AFTER SECOND OPERATION; BRONCHO-PNEUMONIA FOUND IN BOTH LUNGS; ACUTE NEPHRITIS. NO FALL OF TEMPERATURE AFTER OPERATION.

Finally I will draw attention to certain cases which do quite well for two or three weeks after operation and then show an irregular rise of temperature. The discharge from the tube has almost ceased. No complications can be detected by examin-



XXII. I. C. A BOY OF EIGHT MONTHS. SEPTIC TEMPERATURE AFTER OPERATION; GOOD DRAINAGE; LITTLE COUGH; NO SLEEP; VOMITING; BLOODY STOOLS.



XXIII. W. F. A GIRL OF FIVE YEARS. OPERATION APRIL 3, 1897. ALMOST NORMAL TEMPERATURE TO MAY 9TH, THEN DAILY FEVER RANGING FROM 101° TO 104°. MAY 25TH THE TUBE WAS REMOVED AND THE CHILD WAS CARRIED OUT OF DOORS; WITHIN ONE WEEK THE EXTREME ANÆMIA IMPROVED AND THE TEMPERATURE FELL AND REMAINED NORMAL.

ing the urine, the blood and the various organs. If in this class of cases we remove the *drainage tube* and have the patient taken out doors in spite of the fever, we get a rapid and satisfactory improvement. These cases remind us of the scarlatina patients with fever lasting for weeks after the rash has disappeared, and for which the closest examination will fail to locate a cause. The probability is, that such temperatures are occasioned by what we understand to be the result of absorption of inflammatory products. The drainage tube is in itself a source of irritation and should be removed as early as possible. Should a reaccumulation of pus take place and the wound be closed, it is a simple matter to enter the original cavity through the soft parts, if resection of a rib segment has been done. *Chart XXIII.* illustrates such a case. Fever sets in five weeks after operation, continues for three weeks, and subsides as soon as drainage tube is removed and child is carried out of doors.

In conclusion I would remark that our investigation has shown that in the vast majority of cases a rise of temperature is observed at some time or other after operations for pyothorax, and that only in a very few cases the temperature remains normal or thereabout until healing is accomplished.

This rise of temperature may mean very little, *but it always indicates something which we should endeavor to locate and correct.* The successful management of pyothorax is not alone a matter of incision and drainage, but calls for accurate clinical investigation and observation. A carefully kept record of temperature furnishes valuable evidence as the underlying cause of fever.

753 MADISON AVENUE.

Treatment of Anæmic Dyspepsias in Children.—Eldridge G. Cutler (*Boston Medical and Surgical Journal*, 1897. Vol. cxxxvii., No. 11), in speaking of treatment, advises the use of ferratin to increase the hemoglobin. In examining the patient, the relation or dependence of dyspeptic conditions on other local diseases or general disturbances should be sought and found. The lungs and the urine should be examined; the hemoglobin should be examined weekly, and the patient weighed. If diet and control of daily life do not increase the hemoglobin, then ferratin should be used to aid other measures.—*Medicine.*

IRRIGATION BY SUBMERSION IN THE TREATMENT OF EMPYEMA.*

BY SAMUEL S. ADAMS, A.M., M.D.,

Professor of Pediatrics, University of Georgetown; Visiting Physician Children's Hospital, Washington, D. C.

To A. Zeman must be given the credit of introducing the warm bath as a means of washing the pleural cavity in cases of pyothorax.

In the *Voyenno Med. J.*, (*Army Med. J.*,) 1896, clxxxvii., 822-829, November, Zeman gives the most interesting account of the accidental discovery of this method, in an article entitled "Washing the Cavity of the Pleura in Empyema by means of Baths."

He considered the usual method of washing out the pleural cavity unsatisfactory, as only the liquid matter is removed, while many products of inflammation adhere to the pleura, thus keeping up the irritation. The author accidentally hit upon the following method of washing out the pleural cavity:

CASE I. G. L. entered the Military Hospital March 15, 1893, suffering from empyema of the right side. The author performed thoracotomy, with resection of a rib. A great quantity of pus escaped and the cavity was irrigated with a physiological salt solution. On the following day the patient literally swam in pus. Having again washed the cavity with physiological salt solution three times, a bath was ordered to wash off the pus from the outside of the body. To prevent the pus from re-entering the pleural cavity the bath-tub was to be filled so as to reach below the opening when the patient was sitting in it. He was instructed to sit so as to prevent the water from entering the opening. He, however, desiring a thorough cleansing, allowed the water to go above the opening and into the pleura cavity, having taken advantage of a lack of vigilance of his attendants. At this moment Zeman appeared upon the scene and noticed that with each inspiration, in consequence of the expansion of the thorax and negative pressure within the pleural cavity, the water entered with great force, and was forcibly expelled by each expiration, carrying with it a great mass of thick pus and fibrinous coagula which had remained in the pleural cavity in spite of the irrigation. He then placed his hand over the opening and it was drawn in by a force estimated to be equal to one-fifth of an atmosphere. From that time the patient was given daily baths. The ordinary river water was filtered and boiled, but no disinfectants were used. The water in the tub stood about three inches above the opening, and the temperature was 95° to 99.5° Fahr. The bath usually lasted from ten to fifteen minutes.

---

*Read before the American Pediatric Society, Cincinnati, June 2, 1898.

In two more cases the author verified the above. After operation he thoroughly washed out the pleural cavity with the irrigator until the water was returned clear; then he placed his patient in baths, and in both cases a mass of compact products of inflammation was washed out; but the difference was less marked after the first bath, because there were no longer masses of débris in the pleural cavity.

The fact that the force of the inflow of water from the baths equals one-fifth of an atmosphere, while much less force is employed with the irrigator, would explain the removal of the tough masses. In washing out with the irrigator the water does not reach every part of the pleural cavity; while, in accordance with Mariott's law, the water of the bath will reach every portion of the pleural surface. In the mechanism of this method there is sucking in and gushing out caused by inspiration and expiration, which in turn causes alternating positive and negative pressure, and hence a more thorough washing.

His reasons for preferring this method are:

1. It is simpler, cleaner, easier, and in the ten to fifteen minutes that the patient is sitting in the bath he will be washed out two to three hundred times; not three to four times.

2. Much economy is caused in dressings, as by removing the thickened matter from the pleural surfaces there will be less irritation and the production of much less pus.

3. The baths improve the general condition of the patient, causing better metabolism. In irrigation fresh water is constantly used; but as the pus and other products are heavier than water they fall to the bottom of the tub, while the upper portion of the water remains unpolluted.

CASE II. V. A., Sharpshooter, admitted January 9, 1894, with left-sided empyema. Thoracotomy: and resection of 8 ctm. of seventh rib. Complete recovery in five weeks.

CASE III. A. V., male, aged two years, tuberculous, with left-sided empyema. Although the child was greatly exhausted, 3ctm. of a rib were resected and the child rapidly improved. On the ninth day, however, tubercular meningitis set in and the child died in a few days. Zeman says the last case should not be considered, as sufficient time was lacking in which to make a fair test of the treatment.

At least sixty baths were given in two of these cases and no bad effects were noted at any time.

This method of treatment was employed in the following case:

Mary M., aged eight years, Italian, was admitted to my service at the Children's Hospital, November 4, 1897. The following meagre history is all that could be learned from her mother and a woman that accompanied her, owing to their inability to understand and speak English. Her father and mother are in good health; and the family history does not show any transmissible taint.

Five months ago she is said to have had pneumonia of the right lung and has never recovered her health since the attack. The appetite is fair; she is constipated; cough has been almost incessant; and there has been occasional fever and night sweats. An abscess on the anterior aspect of the chest at the third interspace, to the right of the sternum, has appeared within the past five days.

She was placed on the table at my clinic and the following notes were taken. Emaciation marked; features pinched; slight icteric hue of skin; and cutaneous veins distended. Pulse weak and thready. An abscess about four inches in diameter is situated just to the right of the sternum between the second and fourth ribs. Its covering is very thin and its walls relax with each inspiration and become tense with expiration.

Respirations are accelerated but there is no dyspnœa. Flatness over entire chest anteriorly and posteriorly. Vesicular breathing absent. Bronchial breathing and voice anteriorly and posteriorly, but feeble and distant. Vocal fremitus almost absent. Bulging of intercostal spaces on right side.

The diagnosis was clear.

I made a free incision into the abscess, when more than a pint of greenish pus escaped and continued to do so with each expiration. A dressing was applied and she was transferred to the Surgical Service for operation.

November 8th. Dr. J. Ford Thompson resected about two inches of the seventh rib in the right axillary line. A large quantity of pus escaped. The pleural cavity was thoroughly irrigated through the upper and lower openings, a drainage-tube having been inserted into the latter.

Her condition improved slowly and the physical signs of the normal chest were returning, but the profuse discharge continued in spite of thorough daily irrigation.

November 20th. It was determined to place her in a bath of boiled water at 100° Fahr. for fifteen minutes, after the method of Zeman. The cleansing was complete. With every inspiration the water would run into the two openings and, with expiration, would return laden with pus, which would sink to the bottom. Her entire body was kept under the water until the expiration gave out clear fluid, the time varying from ten to twenty minutes. At first a daily bath was given and then one every other day until she recovered and was discharged—the former January 1, and the latter February 21, 1898. She preferred the baths to irrigation with the syringe; sixteen baths were given, extending over three weeks. At the time of her discharge she was a rosy, robust girl, with a normal chest and normal chest sounds.

Having witnessed the thoroughness of this method of irrigation, and the comfort of the child while reposing in the warm bath, I must recommend it in cases of empyema in which an opening of sufficient size to enable free ingress and egress of the water is made. It is a matter of choice which antiseptic, if any, is to be used, but care should be exercised in employing those which are easily absorbed. Boiled water or a saturated solution of boric acid will be sufficient in most cases; the latter, however, would add greatly to the expense. The bath is prepared in the same manner as it is in the Brand method, and the water should be kept at a uniform temperature, 100° F., by adding warm water from time to time. There is no chilling, so the patient may remain in the bath several minutes after the water is returned perfectly clear.

This method also recommends itself in treating such cases in private practice, owing to the ease with which it can be carried out by the child's parents, as well as by its inexpensiveness.

1 DUPONT CIRCLE.

DISCUSSION.

Dr. Winters.—I think one feature of the method suggested is its simplicity and the fact that it does away with the resistance of the child to irrigation. There is nothing more unpleasant than the resistance of the child to irrigation after operation for empyema.

Dr. Caillé.—At the present time in the vast majority of cases, irrigation is not practised, but this seems to me to be a very pleasant way of cleansing the thorax in cases that require irrigation.

Dr. Adams.—In tubercular disease this was tried but there was so much contraction of the chest that the water did not go in with any effect whatever.

Dr. Jacobi.—There may be exceptional cases where the adhesions of the lungs are such that the entrance of very much water may interfere badly with the case.

Gastric Form of Epilepsy. Fichaux has collected (*Thèse de de Lille*, 1897), a certain number of cases showing the existence of a form of epileptic seizure which manifests itself by attacks of gastralgia. This form of the disease has attracted very little notice, Trousseau and Féré being almost the only writers who allude to it. To quote the case in illustration: A girl, aged twenty-two, under the writer's care, apparently in good health, will suddenly cry out with severe pain in the epigastrium, this not being preceded by any other sympton. If standing up, she has time to sit down; she becomes extremely pale, with a slight loss of consciousness lasting from two to three seconds, during which time she is unable to perceive any sensation. On returning to consciousness there is a feeling of fatigue and headache, which lasts an hour or so. Under the influence of bromide these attacks become very much less frequent. In all the cases collected by the author there was this same sudden character in the onset. In the absence of every other symptom the apparently perfect health of the patient between the attacks is strongly suggestive of their epileptic nature.—*British Medical Journal.*

ALBUMINURIA AS A LITHÆMIC MANIFESTATION IN EARLY LIFE.*

BY B. K. RACHFORD, M.D.,

Clinician to Children's Clinic, Medical College of Ohio, Cincinnati.

The purpose of this paper is to note the importance and significance of the albuminuria which not infrequently is associated with certain lithemic paroxysms occurring in early life.

In other papers read before this society I have carefully described certain clinical pictures presented by lithemia, as it manifests itself in infants and children. In these papers I have called special attention to a group of symptoms from which these lithemic patients suffer, and have designated this symptom group as a "migrainous gastric neurosis."

These attacks, as I have elsewhere noted, come and go without apparent cause. They continue for a few days, and are characterized by nausea, uncontrollable vomiting, slight elevation of temperature and more or less pain in the head or in the gastric region.

The continued study of these cases has developed the fact that in a number of them there is a transient albuminuria, which continues during and for a short time after the other symptoms of the attack have disappeared. But before giving detailed attention to the albuminurias which accompany these lithemic attacks in early childhood, I wish to call attention to some clinical observations which I recently published in the *Philadelphia Medical Journal* on the association of transient albuminuria, arterio-sclerosis, and certain lithemic manifestations occurring in later life.

In this paper I noted the fact that migrainous and bilious attacks so common to lithemics in middle life and advanced life, are not uncommonly associated with a transient albuminuria, and that as time goes on there slowly develops in these individuals an arterio-sclerosis, and that as the arterio-sclerosis grows apace, the albuminuria accompanying the lithemic paroxysms increases, until finally it becomes constant. I further suggested that the treatment of this lithemic albuminuria should be preventative, that is to say, the treatment should be commenced either before the albuminuria appeared or that the importance of the slight transient albuminuria occurring with lithemic headaches, and gastro-neurotic attacks, should be recognized and treated long before advanced arterio-sclerosis, and constant albuminuria had developed. And here again I raise my voice in evidence that the transient albuminurias of lithemic attacks are of the greatest pathological and clinical importance, in that they point out to us certain lines of treatment which must be persistently followed if these cases are to be saved in later life from cerebral hemorrhage and chronic Bright's disease.

---

*Read before the American Pediatric Society, Cincinnati June 1, 1898.

The importance of this subject is increased by the fact that there is a long period of time covering late childhood and early middle life, during which lithemic paroxysms are as a rule not associated with albuminuria. I am impressed with the belief, therefore, that albuminuria accompanied by lithemic manifestations, is more frequent in early childhood and advanced life, than it is during late childhood and early middle life, that is to say it is less frequent in the middle than in the extremes of life.

As previously noted, one is able to account for the gradually increasing albuminuria of lithemic paroxysms in advanced life by the coincident gradual development of an arterio-sclerosis. It has its origin probably in the long continued irritation from toxic products which are the causes of these lithemic paroxysms. The transient but gradually increasing and finally continuous albuminurias of lithemic patients in advanced life has, therefore, in the gradually developing arterio-sclerosis with the accompanying changes which occur in the kidney, a sufficient morphological explanation, which does not apply to the albuminurias which accompany the lithemic manifestations of early life. For an explanation of the lithemic albuminurias which occur at this time, other etiological factors must be considered. With this somewhat general discussion of the subject, I ask attention to the following case which may serve as a text for the discussion of the etiological and the pathological importance of albuminuria as a symptom of early lithemic manifestations.

Case I.—Male child, two years of age, born of gouty parents, history on both sides of bilious attacks, migraine, and rheumatic gout running through several generations. On March 8th, last year, I saw this child in the beginning of one of his severe lithemic attacks. I learned from the mother that he had had five or six of these attacks within a year and that they developed without apparent cause, continuing for four or five days, and convalescence was then rapidly established, the child remaining well until the next attack. The similarity of these "spells" had impressed the mother so that she spoke of the attack in which I saw him for the first time, as being the beginning of one of the peculiar attacks from which he so often suffered. The patient in this instance was prostrated with vomiting, which continued for four days and then disappeared as suddenly as it came. The patient had a temperature at this time ranging from normal to 102°, and was in a state of constant fretfulness, crying a great portion of the time. He was constipated, and toward the close of the attack when his constitution was relieved by small doses of calomel, the fecal discharges were very putrid. During the whole of this time the nausea was great. All food, even water, was quickly rejected by the stomach. On the fifth day, convalescence commenced, and was soon rapidly established. All symptoms quickly disappeared, and the child commenced to take and relish food, as he did when in perfect health. The urine of this child was carefully examined and found to contain albumin, hyaline casts, epithelial cells. Immediately convalescence was established the urine cleared.

The transient albuminuria which accompanied this attack is a point of special interest in this history to which I wish to call attention, but, in the first place, I wish to say a word as to the nature of this attack and to insist that it was primarily of lithemic origin, and not a case of primary gastric or intestinal infection. These cases belong to the class of cases described by Holt under the name of "Cyclic Vomiting," and to the class of cases which I have previously described at length under the term "Lithemic Gastric Neurosis." As I said in a paper read before this society last year, I have followed a number of these cases long enough to see these gastric attacks of infancy gradually change into true migrainous attacks in childhood.

As the child gets older there is a tendency to abatement on the part of the gastric symptoms, and an increase in the headache and narcotism which is more characteristic of them in later childhood and adult life. This gradual transition seems to stamp these attacks as purely of lithemic origin. That these lithemic attacks of infancy and early childhood may be accompanied by transient albuminuria, and other evidences of intense renal irritation is of more than passing importance and of especial interest to pediatrists, since it cannot be explained by arterial changes at this early period of life.

The albuminuria, therefore, it seems, can only be due to the irritation of the delicate kidney structures of the child, which results from the attempt at elimination from the blood of the poisonous and irritating products which are the causes of the lithemic attacks. Since my attention has been directed to the subject, I have found not infrequently a small quantity of albumin in the urine of infants and children suffering from attacks of acute lithemia.

In this connection it is interesting to note that Lacour reports three cases of intermittent albuminuria which occurred in the same family, and called special attention to the fact that these children had inherited a strong gouty tendency.

It is my belief that these cases, which I have described, do not belong to precisely the same type of cases which Jacobi has so exhaustively described in his teaching over a period of many years, as occurring in the early days of infancy as the result of uric acid infarction, nor do they belong, as I believe, to the albuminurias which Jacobi has described as being produced by the absorption of toxic products which result from abnormal intestinal fermentations, occurring in the intestinal disorders of infants and children. But they are, on the other hand, as I believe, analagous to the transient albuminurias which occur as a result of lithemic paroxysms in later life. Auto-intoxication is responsible for lithemic albuminuria, whether it occurs at the beginning, or at the end of life, and that its prevalence in middle and later life is due to the arterio-sclerosis which this same auto-intoxication has developed, and that its prevalence early in life is due to the fact that the kidney at this time is more delicate of structure, and more non-resistant than it is later. The comparative infrequency of lithemic albuminuria in late childhood and early adult life, is due on the one hand to the better developed and more resisting structure of the kidney, and on the other to the fact that the arterial changes found in old lithemics have not yet had time to develop.

323 BROADWAY.

DEATH FROM HÆMOPTYSIS OF A CHILD AGED THREE YEARS.*

BY GEO. N. ACKER, A.M., M.D.,

Clinical Professor of Medicine and Diseases of Children, Columbian
University; Visiting Physician to the Children's Hospital and
to the Garfield Hospital, Washington, D. C.

C. P., aged three years, male, colored, was admitted to the Children's Hospital April 20, 1898.

Mother and father living and in good health. One sister, eighteen months old in good health. Father has lost two brothers with tuberculosis. The child was breast fed until two months old and cut first teeth when six months old. Has always been a delicate child. He has been sick for twelve days with a slight cough which has increased, until at present it is frequent and attended with much pain. He has had fever every night since the sickness began.

There is loss of appetite and he vomits frequently after eating. The bowels are irregular. He is very restless at night. The cervical glands are somewhat enlarged.

There is slight dulness on percussion on both sides of chest. Rough broncho-vesicular breathing, with many mucous râles both sides of chest, more marked on the right side.

The child is very nervous and fretful. The patient became progressively worse and he died April 29th at eleven a.m., immediately after expectorating a quantity of blood. The temperature at the time of death was 104° F.

The temperature ranged during the time the child was in the hospital from 100° F. in the morning, to 104° F. in the evening.

Necropsy by Dr. D. S. Lamb.—Body somewhat emaciated; follicular enlargement of tonsils; slight abrasion of right vocal cord; otherwise mouth and larynx normal, some thin blood in mouth, pharynx, larynx, and trachea.

Both lungs congested and studded with miliary tubercles; œdema of right lower lobes; some bronchitic exudate on right side; bronchial glands much enlarged and cheesy; bloody serum in each plura; heart normal; liver pale; some bile in gall bladder;

---

*Read before the American Pediatric Society, Cincinnati, June 2, 1898.

enlarged gland at head of gall bladder; spleen much enlarged; firm old adhesions to diaphragm; congested; studded with either enlarged malpighian bodies or minute tubercles throughout; pancreas normal; stomach normal; intestines normal; mesenteric glands enlarged and cheesy; each kidney contained a few tubercles; cause of death, apparently from hæmoptysis; no ulceration.

913 Sixteenth Street.

An Early Symptom of Measles. Slawyk, of Heubner's clinic (*Deut. Med. Woch.*, April 28, 1898), draws attention to the eruption present in the mouth during the early days of measles, first described by Koplik. It consists of shining red spots, in the middle of which there are very minute bluish-white efflorescences. Slawyk says that Koplik's spots have not received the attention which they deserve, and that they represent an absolutely trustworthy and early indication of the disease. During last winter an epidemic of measles broke out in some of the clinics of the Berlin Charité. These cases along with those of Heubner's clinic, numbered fifty-two cases, and in forty-five of these Koplik's spots were observed. In two of the remaining cases the patients were too ill to permit of a satisfactory examination of the mouth. The spots appeared on the mucous membrane of the cheek and sometimes on the lips. They are mostly few in number. A bright light is necessary, as they are not visible in a yellow light. They practically never run together. They are distinguished from thrush by their color and their rounded contour. They may be picked off with the forceps without pain or bleeding, and they are then seen under a microscope to consist of large masses of epithelium undergoing fatty changes. They have not been observed in other acute illnesses. In every case where they were seen the measles rash followed, so that whenever they were present the child was at once transferred to the measles ward. Koplik's spots appear on the first or second day of the disease, and increase in numbers up to the time of the skin eruption; they usually further remain for three or four days, so that they last from three to six days. They produce no discomfort. In some cases of measles followed by a stomatitis they were absent. No prognostic significance can be attached to them, as they were present both in mild and severe cases. Details of eight illustrative cases are given.—*British Medical Journal.*

TWO CASES OF APPENDICITIS IN CHILDREN OF FOUR YEARS.*

BY J. P. CROZER GRIFFITH, M.D.,

Clinical Professor of Diseases of Children, in the University of Pennsylvania, Philadelphia.

George B., aged four and one-half years, was taken sick upon June 19, 1896, with vomiting and diarrhœa. Diarrhœa persisted on the 20th, but on the 21st the boy seemed entirely well. His sister was taken ill in just the same way at the same time, and there seemed no doubt but that both were suffering from digestive disturbance. But on the 22d, the boy began to suffer from paroxysms of pain in the abdomen not located in any one region. When I first saw him on the 23d, his condition was unchanged. There had been no stool since the day before. The abdomen was distended, but there were no evidences of inflammation in any special region. He was ordered calomel and external applications. On the night of the 23d, he suffered from pain so severely that it was necessary to give him opium. On the 24th, he had no appetite, there had been no movement of the bowels, the abdomen was tympanitic and tender, especially in the right iliac fossa, and there was apparently slightly greater resistance here, but no tumor could be felt. There had been much pain suffered. The suspicion of appendicitis now arose prominently, although it seemed rather improbable on account the history of digestive disturbance. He was ordered a poultice externally and Rochelle salts. During the night following he vomited several times, had several stools and suffered severely from abdominal pain. On the 25th, the abdomen was uniformly distended, but by the afternoon of this day, there was very decided limitation of tenderness to the cæcal region with increased resistance there. The diagnosis of appendicitis now seemed almost certain. On the morning of the following day, Dr. Noble saw him in consultation. By this time, no doubt whatever of the diagnosis remained, the local signs being quite decided. The child's general condition was and had been excellent. It is interesting to note that there had been no fever at all until the afternoon of this date, when the temperature reached 101°. Dr. Noble did not wish to operate himself for reasons upon which it it is unnecessary to enter, but advised it strongly, as did I, although I confess I was in doubt whether pus was yet present. On the next day, the 27th, at 12:30 P.M., Dr. J. B. Deaver met in consultation, prepared to operate, and the operation was performed. Considerable pus was found; the appendix was not removed. Upon the next day the child had slight fever and his expression was a little pinched, and there were some evidences of slight septic absorption. On the 29th, his condition was perfect; there was no fever of any account, the appetite was returning, the bowels had been moved several times, and there was practically no pain. The recovery was uneventful.

---

* Read before the Philadelphia Pediatric Society.

This case was of great interest to me on account of the difficulty in diagnosis. In abstract, I suppose, the diagnosis was easy, but when it came to the individual, I found it hard. First, there was the youth of the patient, for appendicitis is admitted to be very uncommon so very early in life. Then the onset as an undoubted simple intestinal catarrh, due to some indiscretion of diet, threw one naturally off the track. That the disease had been originally just a digestive disturbance was proven by the history of the sister. The apparent recovery, followed on the 22d by a return of vomiting and diarrhœa, with the added element of pain, seemed to indicate merely a continuance of the intestinal catarrh. Children, as we know, are so apt to have vomiting, diarrhœa and abdominal pain from slight disturbances of digestion, and the pain may even be referred to the region of the cæcum, yet without there being anything to justify the diagnosis of an inflammation there. I have now no doubt whatever that this date, the 22d, marked the beginning of the appendicular inflammation, at first catarrhal, spreading from a general intestinal catarrh.

The second case was in a little girl of just four years, whom I saw this winter. She happened to live just across the street from the first child, and curiously, too, in both cases, the inflammation seems to have been a sequel to ordinary digestive disturbance. The history of the attack is as follows:

N. F., four years old, was taken ill suddenly on the afternoon of February 4th, with intense diffuse abdominal pain, which caused her to cry out violently. A short time later she vomited, and then fell asleep. The attack seemed to have been one of colic merely, due to eating some apple pie at dinner. A laxative was therefore ordered. She had a restless, feverish night, and upon the 5th still suffered from soreness of the abdomen. For several days she continued to have diffuse abdominal pain, with diarrhœa and the passage of mucus from the bowels. In fact, she suffered from all the symptoms of dysentery of moderate degree, which confined her to bed, and decidedly affected her general health and strength. By February 10th she was improving greatly, although she still had some mucous passages. On the next day she was much better, and I stopped in the house on the 12th and was told that she was so well I need not see her.

On February 13th, although still free from dysenteric symptoms, she developed some griping abdominal pains, and on February 14th, I was sent for. I found her playing in the nursery, but was told that she occasionally complained of paroxysmal abdominal pain, and that she often leaned well forward when she walked. This was itself a suspicious symptom. Examination showed some increased resistance, slight tenderness, and some hardness in the right iliac fossa. The temperature taken at 11 A.M. was 99°. On the chances that the symptoms might be due to accumulation of feces, she was given castor oil. By 6 P.M., the child felt better and was lively and happy, but there was still tenderness, with attacks of pain, and the temperature 101.8°. I saw her again at 8 A.M. on the next day, February 15th. The temperature was now 99.8°. She had had a good deal of pain during the night, never intense, and always referred to the right groin or even lower to the thigh itself. She was irritable and it was impossible to make a perfectly satisfactory examination, but nothing abnormal could be felt. At 1 P.M. the temperature was 101.8°. She seemed bright and hungry. The same difficulty in examination was present, but there was certainly no prominence of the right iliac region and nothing clearly to be felt amiss. The diagnosis of appendicitis being so likely, arrangements were made for a consultation with Dr. T. S. K. Morton, yet without thought of immediate operation, as the symptoms were not urgent in the slightest. But shortly after 1 o'clock vomiting began, and at 5:30, when seen with Dr. Morton, the child looked much worse, her appearance indicating beginning sepsis. Examination now showed an undoubted mass in the appendicular region. The operation was performed at 9 P.M. Considerable pus was found, with evidences of an inpending general peritonitis. The appendix was not removed. The operation was well borne. Vomiting was troublesome during the night following and continued so on February 16th. The general condition was, however, excellent, and no evidences of sepsis were present. The temperature in the morning was 102.4°, but fell steadily from this time, and was normal by February 18th. The bowels were moved on the night of the 17th. The recovery was entirely uneventful.

This case was interesting, and as being an instance of appendicitis following dysentery, as also, like the last, on account of the youth of the patient. It seems probable that a superficial dysenteric ulcer occasioned the symptoms of appendicitis, which began on February 13th, showed themselves decidedly on the 14th, and rendered operation imperative upon the 15th. There never was much doubt in the matter of diagnosis in this case. Just when the perforation took place which occasioned the abscess, it seems difficult to judge.

123 South Eighteenth Street.

Clinical Memoranda.

SYMPATHETIC OPHTHALMIA IN A CHILD.*

BY WILLIAM PUSEY, M.D.,
Louisville, Ky.

On April 22, 1898 a child aged three and one-half years, who had stuck a knife in his right eye, came under my care. The lower edge of the wound was about one-twelfth of an inch from the sclero-corneal margin; the apex was about at the apex of the cornea. There was rupture of the lens capsule and prolapse of the iris into the wound. The iris was slightly wounded, but apparently the ciliary processes were not injured.

The child was put upon the usual treatment and did fairly well; the eye did not seem to be very much inflamed until the fifth day; there was fear of light and some little inflammation of the conjunctiva of the left eye on the fifth day after the injury. The pupil was somewhat contracted. By the eighth day the symptoms were very much more marked. A poultice was applied for one or two days. On the twelfth day the symptoms were so marked that the injured eye was removed. This is the quickest case of sympathetic irritation that I have ever seen. When the eye was removed it was simply a pus sac. The pupil of the remaining eye is very much contracted, and there is inflammation of the conjunctiva. I believe the case is unique as to the time which elapsed between the injury and the development of sympathetic irritation.

DISCUSSION.

Dr. P. R. Taylor, in discussing the case, said that sympathetic ophthalmia resulting from acute injuries was unusual. It usually came on after an eye lesion has existed for a long time. The reporter stated that there was no wound of the ciliary processes; if the injury was anterior or posterior to the ciliary processes, we did not usually have this trouble. It may be that there was an iritis in that eye rather than a sympathetic ophthalmia.

Dr. H. Leavell said that the general practitioner should be told by the specialist to especially notice the situation of injuries to the eye, as the general practitioner usually saw these cases first, and this point had considerable bearing upon the production of sympathetic ophthalmia. The situation in this case was one where we would expect sympathetic ophthalmia to develop very early. While it seemed a little remarkable that it should have developed early, still when we took into consideration the arrangement of the eye, it was not difficult to understand how this might occur.

---

* Reported to the Falls City Medical Society.

Dr. A. O. Pfingst said that the oculists were in about the same position in regard to the removal of such eyes as the general surgeons were about appendicitis. As a matter of fact there were no well-defined rules as to just when an injured eye should be removed, and for fear of erring on the wrong side we sometimes took out an eye before there are any signs of sympathetic trouble. The location of the injury was of importance. If a foreign body has entered the ciliary region the chances of inflammatory changes in the opposite eye were greater than they would be otherwise.

The Widal Reaction in the Newborn.—Dr. Alfred Stengel recently presented an interesting case in the clinical amphitheatre of the University of Pennsylvania. The patient was in the ninth month of pregnancy and the second week of an attack of typhoid fever. Her temperature had been quite high during the attack, which had run a typical course and given the Widal reaction. The child was born with a temperature of 102°, which gradually subsided within a period of three days. The Widal reaction was sought for, but not secured. Two days after the birth of the child the mother's temperature had a sudden exacerbation, but gradually subsided, and both bother and child are now doing well.—*New York Medical Journal.*

At its last annual Commencement the degree of Doctor of Laws was confirmed by the University of Michigan upon Dr. A. Jacobi. So well merited was this honor that the University in bestowing it honored itself no less than Dr. Jacobi.

THE
ARCHIVES OF PEDIATRICS.
DEVOTED TO THE
DISEASES OF INFANTS AND CHILDREN.
AUGUST, 1898.
Edited by FLOYD M. CRANDALL, M.D.,
Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician, Hospital for Scarlet Fever and Diphtheria; Consulting Physician, Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

RHEUMATIC AFFECTIONS OF THE HEART IN CHILDHOOD.

Such a large proportion of all cardiac disease has its origin during childhood that the subject of such disease in children is one of the highest importance. Disease of the heart during early life is so largely rheumatic in its origin, that rheumatism, also, is a subject of grave importance. We have several times in these pages called attention to the fact that rheumatism in children is usually a fugitive and uncertain disease. Articular manifestations are at the minimum; endocardial complications at the maximum. In a recent number of the *Edinburgh Medical Journal*, Dr. J. F. H. Broadbent writes most wisely upon the subject. He refers to the insidious character of rheumatism in children and the even more insidious course frequently pursued by endocarditis. The only physical sign by which we can certainly determine its existence is the development of a valvular murmur. Usually when this is discovered, the evidence of cardiac dilatation is also found.

Pericarditis very frequently follows endocarditis. According to Sturges, it is rare for the victim of endocarditis to wholly escape pericarditis. Although there are frequently certain alterations in the heart sounds not amounting to a murmur, the presence of an actual murmur is the first reliable evidence of endocarditis. The first definite indication of pericarditis is a to-and-fro friction sound first audible, as a rule, at the base of the heart over the left auricle. Less frequently the first friction is heard at the apex. Various warning symptoms may precede the appearance of the friction rub, such as acceleration of the pulse, dyspnœa, restlessness, rise of temperature, increase in the area of cardiac dulness, and occasionally some irregularity in the cardiac action.

One of the most striking features in the development of pericarditis is the rapid increase in the area of cardiac dulness. This is due, as a rule, according to Dr. Broadbent, not to pericardial effusion, but to dilation of the heart.

In severe cases, the cardiac dilatation may rapidly become extreme, and the patient succumb within a few days after the first appearance of the pericardial rub, from a syncopal attack, which is sometimes associated with severe vomiting. In favorable cases, the friction rub disappears after a few days, and the cardiac dilatation rapidly decreases till the heart again regains its normal size, so that the patient eventually may be little the worse for the attack. More commonly, especially in a second attack of pericarditis, the inflammatory process seems to assume a subacute form; the pericardial rub persists over a varying area for some days or weeks, and the area of cardiac dulness remains unaltered, and even increases in extent.

THE ULTIMATE RESULTS OF PERICARDITIS.

In the paper already referred to Dr. Broadbent holds that in pericarditis during childhood the disease may pursue either one of three different courses. Eventually, he says that within from six weeks to three months, one of three things may happen:

1. The area of cardiac dulness may decrease till it is nearly normal in extent, indicating that the heart has approximately regained its normal size, in which case a satisfactory recovery may be anticipated.

2. The area of cardiac dulness may remain permanently en-

larged, though the patient has become convalescent, in which case it is probable that universal adherence of the pericardium to the heart is taking place, and, though the patient recovers, the heart will be permanently crippled.

3. The area of cardiac dulness may still further increase, the liver become enlarged, and dropsy set in, and the patient die with all the symptoms of right ventricle failure.

The prognosis in each case depends on the degree to which the myocardium is affected by the inflammatory process. If only the superficial layers of muscle in proximity to the pericardium are affected, the heart may rapidly contract again to its normal size, and is little the worse; if the inflammation is more protracted and extended, and involves the deeper layers of the myocardium, the heart is unable to recover rapidly, and the pericardium becomes adherent to it. The heart is in a condition of dilatation from which it never completely recovers.

In the third group of cases, the myocarditis is so severe and extensive that the greater proportion of the muscular substance is involved, and the heart walls gradually yield, as the inflammation spreads through them, till a condition of extreme dilatation is induced, and, in addition to this, the pericardium may also become universally adherent. In his Lumleian lectures, Dr. Sturges demonstrated that in these protracted cases of pericarditis there is well-marked evidence, *post-mortem*, of myocarditis, the muscular fibres being swollen, their striation lost, and the tissues infiltrated with leucocytes.

DANGER SIGNALS IN RHEUMATISM.

There are certain symptoms indicative of particular danger in the rheumatic attacks of children. These the careful practitioner will neither overlook nor ignore. Broadbent refers to three which are of particular importance: nodules, exudative erythemata, and chorea.

Rheumatic nodules were first described in 1881 by Barlow and Warner. They have been further described by Cheadle, who has called particular attention to their evil prognostic significance. "They mean," says Cheadle, "persistent cardiac disease, generally uncontrollable, and marching almost infallibly to a fatal ending."

Rheumatic nodules are small fibrous growths usually about the size of a pea but being sometimes much larger.

They are found in the neighborhood of joints, over the olecranon or condyles of the humerus, on the margins of the patella, over the malleoli, on the finger joints, on the sheaths of tendons; sometimes on the scalp or vertebral column, and are attached to the fascia, or sheaths of tendons, or to some portion of underlying fibrous tissue. The skin over them is freely movable, and they are best seen by flexing the joint over which they are situated when the skin is rendered tense. They usually appear suddenly and rapidly attain their full size, but are very slow in disappearing. They sometimes last for several months but in rare instances disappear in a few days. They are met with only in children, being almost unknown after the age of twenty.

Exudative erythemata, of the type of erythema marginatum, or less commonly papular or urticarial in character, may occur in rheumatic subjects; they are not so frequently met with as nodules, but they may occur in conjunction with them, or alone, and they have also an evil prognostic significance. Small raised patches with sharply defined margins and of a dull red color, make their appearance. The centre of the patch usually undergoes absorption, and becomes of a pinkish or pale color, while the margins continue to spread as narrow raised red bands with irregular outline. The eruption is usually accompanied by some rise of temperature, and lasts a few days, gradually fading and leaving a slight brownish discoloration.

Although chorea is of less serious significance as regards danger to the heart than are the two conditions just mentioned, it is accompanied with heart complications with sufficient frequency to be looked upon with grave apprehension. The occurrence of either of these conditions should be a warning to the practitioner that the heart is in danger.

Bibliography.

Therapeutics of Infancy and Childhood. By A. Jacobi, M.D., *Clinical Professor of the Diseases of Children in the College of Physicians and Surgeons (Columbia University), New York; President of the Association of American Physicians; Late President of the New York Academy of Medicine and of the Medical Society of the State of New York, etc.* Second Edition. Philadelphia: J. B. Lippincott Co. 1898. Pp. 629. Price, $3.00.

The first edition of this excellent work was reviewed in these pages in 1896. The present edition is much enlarged and contains much not found in the first. It is, however, the same clear cut and compact presentation of the subject of pediatric therapeutics. The original papers of which the work is quite largely composed appeared in the pages of this journal during the years 1888, 1889, and 1890. In the revised edition, however, so many changes have been made that they appear quite different from those published ten years ago.

The book is strictly a personal one, a fact which gives it much of its value. While no claim is made that any considerable part of the treatment advised is new, yet it is clear that nothing is presented the value of which the author has not determined by his own personal experience. Since establishing the first systematic course of instruction in pediatrics in 1860, Dr. Jacobi has been a tireless writer and teacher, and the present work contains the result of a vast clinical experience.

Dietetics and hygiene receive a large share of attention; the first chapter, which is one of the best in the book, being devoted to the feeding of sick children. This chapter has been rewritten and brought into harmony with the most recent medical opinion. The second chapter, upon general therapeutics, is also worthy of particular mention. The author is not a believer in the doctrine that a disease, because it is self-limiting, requires no treatment, but teaches that the severity may sometimes be mitigated and complications may be foreseen and treated, thereby saving many lives. The remainder of the book, is devoted to treatment of the various diseases. Upon the whole, the second edition, both in the quantity and quality of the subject matter, shows a decided superiority over the first edition.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON PEDIATRICS.

Stated Meeting, May 12th, 1898.

J. HENRY FRUITNIGHT, M.D., CHAIRMAN.

THE CAUSES AND TREATMENT OF HABITUAL CONSTIPATION IN INFANCY.

DR. THOMAS S. SOUTHWORTH read a paper with this title. (see page 418).

DR. A. JACOBI said that the paper just presented was a good digest of what was already known regarding the relation of infant feeding to infant digestion. He thought most practitioners would accept the conclusion arrived at by the author. Personally, he differed regarding the effect of a high proteid percentage on the bowels. It had been stated in the paper that a high proteid percentage tended to cause looseness of the bowels, yet he had found that a diet containing too much proteid only resulted in diarrhœa indirectly by causing constipation. It could not be denied that cod liver oil was a valuable agent in the constipation of infants, but it could hardly be looked upon as simply a food, for, if so, it could just as well be replaced by some other fat, such as cream. He was of the opinion that the chemistry of the future would show that cod liver oil contained substances similar to what are now termed "internal secretions." Regarding the use of enemata, Dr. Jacobi said that he saw no reason why the bowels should not be washed out just as regularly as the external integument. Enemata could be used regularly for months, or even years, provided, of course, they contained no irritating substances, such as glycerine or soap. He had been greatly surprised at the off-hand way in which Dr. Southworth had dismissed the important subject of the anatomical peculiarities found in the intestine of the infant, and its bearing upon the subject of infantile constipation. He had long ago called the attention of the medical profession to the existence of a congenital form of constipation—a topic which did not yet appear in all of our text books. The colon of the fœtus and the newly-born infant is about three times as long as the body of the infant: the colon of the adult is about twice as long as the body of the adult. On the other hand, the ascending colon and the transverse colon of the infant are very short, so that the excess of that colon must be covered by the length of its descending portion. This was not a matter of conjecture or theory, for it could be easily determined by actual inspection of the abdominal cavity. Instead of one sigmoid flexure, as in the adult, the infant often has a very long sigmoid flexure, or possibly two or three sigmoid flexures, one upon the other. It is because of the very great length of the colon in the infant that the fæces are liable to undergo dessication, and thus give rise to constipation. Another factor is the narrowness of the colon in the infant—indeed, it was not uncommon for certain portions of the bowels to be normally constricted. Another factor in producing infantile constipation is the ill development of the muscular coat in different portions of the intestines. Still another source of constipation, and one of considerable importance, is localized peritonitis. Whenever there is diarrhœa lasting for any great length of time in a young infant, the inflammation of the bowel is not confined merely to the mucous or submucous tissues, but penetrates to the serous membrane, giving rise to peritonitis. It is, therefore, common at autopsies to find, on the outside of the intestine, little grayish thickenings here and there, indicative of a former localized peritonitis.

Regarding the treatment of constipation, Dr. Jacobi said that if the cases, which he had called congenital constipation, were treated on general principles only, they would most certainly prove disappointing. This form of constipation required the daily use of enemata, and as the anatomical development of the colon often does not reach its completion until the sixth or seventh year, it could not be expected that this form of constipation would be relieved in many instances before that time. The diagnosis of this variety of constipation was easily made, because it exists from the very time the child enters the world. In rachitic babies, on the other hand, constipation, though often developing as early as the second or third month. does not begin at birth, that is, in infants who are nursed by healthy mothers.

Dr. Floyd M. Crandall said that constipation in infants was a subject upon which it was easy to talk wisely, but difficult to act wisely. One great cause of failure in the treatment of infantile constipation was to be found in the fact that this is a chronic condition, and therefore was not relieved by spasmodic or irregular treatment, but only by a well considered and systematic plan. Another common cause of failure was to be found in the great complexity of the etiology of infantile constipation. Undoubtedly the addition of fat to the food would often give relief, but there were many other things which would require attention. The physician who relied *alone* on the addition of fat, would, as a rule, be disappointed. Thus, while he had achieved brilliant success in one case of long standing constipation by making the patient take a larger quantity of water in the intervals of feeding, he had soon found that an attempt to carry out the same treatment in many other cases led to disappointment. Again while the increase of the quantity of fat in the food would often relieve the constipation, it would at the same time cause disturbance of the stomach. As infantile constipation is a complex condition, its successful treatment must consist in the use of a number of remedies and measures, according to a systematic plan.

Dr. L. M. Yale agreed with the last speaker regarding the difficulties experienced in treating individual cases of infantile constipation. Like Dr. Jacobi, he believed that a high proteid percentage in the diet would not cause diarrhœa, except indirectly by first setting up an intestinal catarrh. As a general rule, a high proteid percentage was apt to result in constipation. It was often stated that sugar is a laxative, but while this might be true of the coarser form of sweetening, such as molasses, it certainly was not usually the case with refined sugar. Sugar often causes fermentation, and, by overdistention of the intestines, results in constipation instead of diarrhœa. While admitting that enemata were often given needlessly, he still had no fear of using simple and unirritating injections in the bowel whenever they seemed to be indicated. A matter which was often overlooked, and was still of considerable importance, was the proper position that the infant should assume during defecation. If a child is placed upon a seat, the opening of which is too wide, the child's flabby nates will be crowded together, and defecation will be interfered with.

Dr. Southworth closed the discussion. He said that he had endeavored in his paper to emphasize the importance of training the bowel of the young infant to work regularly, and also the fact that the constipation could usually be relieved by a proper regulation of the diet without the use of much medicine. He had stated that he thought the effect of the congenital condition of the infant's bowels on the production of constipation was over-estimated, because he had often found physicians who seemed to think that this was the chief, and almost the only, cause of infantile constipation. Personally, he believed that this variety of constipation was present in only a comparatively small percentage of the cases.

CLINICAL RESULTS WITH ANTI-STREPTOCOCCUS SERUM.

Dr. Louis Fischer read a paper with this title. (see page 520)

Dr. Henry Dwight Chapin said that he had never been able to see any indication for the use of this remedy in scarlet fever, and as this disease varied so much in its type at different times, it would be necessary to have the results of a large number of cases in order to prove the efficacy of any remedy. He had seen a few cases of scarlet fever treated with this serum in the Willard Parker Hospital, but the result had not been striking, and deaths had ensued, although apparently without any connection with the use of the serum. Another fact to be noted was that a number of abscesses had followed the injections of the serum. He understood that the treatment had now been abandoned in that hospital. One great objection, in his mind, to the serum treatment was the large quantity of the serum that had to be injected into a child—10 c.c. Some years ago he had carried out a series of experiments with serum injected into children suffering from marasmus, using plain, sterilized horse serum, but all the cases had done badly. He then experimented upon guinea-pigs and upon a large sheep by injecting large quantities of this serum. The kidneys of these animals, after such treatment, were found to be the seat of cloudy swelling, and in the few instances in which control animals were also used, no such cloudy swelling was observed.

Dr. W. H. Park said that the streptococcus serum differs from the antitoxin serum of diphtheria in one important feature—the bactericidal action of the streptococcus serum. The virulent streptococcus makes no more toxin than one that is not virulent; the ability to grow alone is what makes it virulent. It was unfortunately true that the streptococcus serum is still very weak, but it is certainly a protective serum, as has been abundantly proved in the experiments at the laboratory of the health department, where a rabbit had been protected from septicæmia by sufficiently large doses of this serum. If, however, a rabbit became so septicæmic that the streptococcus could be obtained from the blood of the animal, the result of the injection of the serum was negative. It should always be borne in mind that the streptococcus serum cannot be of any value except in inflammation due to the streptococcus. In diphtheria, only the secondary inflammations were due to the streptococcus, and, as many other germs were also ordinarily present and active in these cases, it did not seem to him that diphtheria was a disease which opened up a large field of usefulness for the streptococcus serum. In cases of peritonitis, owing to the difficulty of determining the true bacteriological diagnosis, there did not seem to be much advantage in using this serum, unless a culture had proved that the inflammation was due to the presence of the streptococcus. In four recent cases of septicæmia occurring in the service of Dr. W. G. LeBoutillier at the J. Hood Wright Memorial Hospital, the serum had been used, and cultures show the presence of the streptococcus in each one of the cases. One of them was a case of compound fracture of the bones of the forearm, in which amputation was necessitated by the occurrence of septicæmia; another case was of peritonitis following rupture of the vermiform appendix; the third was a case of peritonitis following hæmatocele. It was the opinion of those at the hospital who observed these cases that the serum exerted a beneficial and modifying influence on the course of the septicæmia. Their experience at the laboratory made it certain that a great variety of streptococci were influenced by this streptococcus serum.

Dr. S. H. Dessau remarked that the streptococcus serum had been used satisfactorily by one observer in acute ulcerative endocarditis.

Dr. Edwin Rosenthal, of Philadelphia, said that the object of giving the serum in such diseases as scarlet fever, diphtheria and erysipelas was to combat the result of streptococcus infection. He preferred to confine the use of this serum to scarlet fever, puerperal fever and erysipelas. He did not favor the use of this serum in pneumonia.

Dr. J. J. Concannon said that he had not felt disposed to use streptococcus serum because he could not accept the theory upon which this treatment was based. When the system was invaded by streptococci, one was confronted with a double problem—the co-existence of a toxæmia and a septicæmia.

Dr. William H. Thomson reported an interesting experience with the streptococcus serum in the treatment of a case of chronic ulcerative endocarditis. Previous to the use of the serum the urine had contained occasionally a slight amount of albumin and a few blood corpuscles.

As the patient was growing rapidly worse, and as the prognosis under the usual method of treatment was practically hopeless, it was thought proper to give the streptococcus serum a trial. The serum was obtained fresh, through the courtesy of Dr. Park of the laboratory of the health department. The injections were made, and observations recorded by Dr. Robert Coleman Kemp. On the first day, injections of 10 c.c., morning and evening, did not seem to have any effect, so on the second day he was given 15 c.c. in the morning and 10 c.c. in the evening. It was then noticed that the urine was diminishing in quantity. The next morning he received 20 c.c. and in the afternoon he was suffering from retention of urine, and the urine was bloody. The treatment was continued, and the following morning the man had suppression of urine, which yielded temporarily to hot saline injections in the rectum. He received nine injections of the streptococcus serum, amounting to 145 c.c. in the course of seventy-two hours. The urine again diminished in quantity, the patient became comatose, and died in that condition. In view of the occurrence of bloody urine within thirty-six hours after beginning the injections of the serum, experiments with the serum were made upon animals in the physiological laboratory of the College of Physicians and Surgeons. Eighteen dogs and twelve rabbits were experimented upon. When 20 c.c. of the streptococcus serum were injected there was a fall in the blood pressure in the kidneys, and when 40 c.c. were used it caused hæmaturia and hæmoglobinuria, preceded by albuminuria, and followed by suppression of urine. It was found also that when the streptococcus serum was given in small divided doses, there would be albuminuria, but none of the other serious results already noted.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, May 9, 1898.

FREDERICK A. PACKARD, M.D., PRESIDENT.

APPENDICITIS IN CHILDREN.

DR. J. P. CROZER GRIFFITH reported two cases of appendicitis in children. (See page 611).

DR. G. M. BOYD.—The report of the first case is of more interest to me than is the case across the street. The former was my own son. The little fellow had never been a vigorous boy, but since operation has been in much better health. He was born when sterilization of milk was popular and was given for two years or more nothing else. Whether that had anything to do with his intestinal difficulties of these two years I do not know. At all events for some time prior to this attack of appendicitis he had not been in good health. He had from time to time attacks of intestinal indigestion which gave us much anxiety. Vomiting was an early symptom of the attack. The diagnosis of appendicitis may have been made somewhat obscure because of the fact that his sister and he had been eating jelly or fruit at the same time, and it was supposed they both had an attack of indigestion.

DR. T. S. K. MORTON.—I think with Dr. Griffith and others that it is comparatively rare to find appendicitis in such young children. I have seen in hospitals and elsewhere many cases of appendicitis and this was the youngest child that had come to operation, although I have observed one or two others who were supposed to have appendicitis, but recovered without operation. In this little girl the theory of appendicitis, following dysentery, was probably correct. The preliminary illness was followed by this sudden outburst due to septic perforation of the appendix. The condition here was convincing as showing how quickly tissues melt in the presence of abscess. We had an abscess about the size of a hen's egg, with the appendix entirely sloughed off. The criss-cross or muscle splitting incision of McBurney was used. The pus cavity was isolated and drained. A quantity of slightly turbid fluid was already present in the abdomen and the intestines were injected, apparently to the verge of peritonitis. After a copious irrigation with salt solution, gauze was carried into the wound and no sutures were placed. I have not seen hernias follow drainage after the Mc-

Burney incision has been employed, the probability being that the split muscles subsequently approximate and unite as they were before. A somewhat similar case in a child five years old came under my care last fall. It had been in the hands of a very competent practitioner and presented a history decidedly similar to this. There had been a typical history of dysenteric, bloody stools. After three weeks there was sudden accession of general symptoms pointing especially to the right iliac fossa. We opened the abdomen and discovered an abscess, in which the appendix terminated. I could see deep ulceration of the colon still persisting.

Dr. L. J. Hammond.—In regard to the difficulties in the diagnosis of appendicitis in such young children, I would like to refer to a little girl I operated on some weeks ago who was between four and five years old. I found at the operation such extensive adhesions, many of them organized, that I believe she must have had previous and probably repeated attacks which had not been diagnosticated. Indeed appendicitis had not been diagnosed until three days before I operated. The case was seen in the Samaritan Hospital. I found a large amount of pus, a gangrenous appendix and firmly organized adhesions. Everything showed that the child must have had former attacks that had not been recognized. I have also been fortunate enough to dissect out the entire pus sac from a boy twelve years of age, appendix and all.

Dr. F. A. Packard.—The only case of appendicitis that I have seen under seven, was four years of age. The history showed remarkable similarity to that of Dr. Morton's case, beginning with a fall, which had, I imagine, nothing to do with the boy's illness, followed the next day by several bloody stools, so bloody that the child's nurse recognized that they contained blood. I saw the child four days after that for the first time; then a well formed abscess, clearly walled off by firm semi-organized lymph, was present.

CRETINISM.

Dr. H. B. Carpenter presented a case of cretinism. He said: I presented this child at one of the early meetings of this Society, and bring her before you again this evening to show the result of eighteen months' treatment. She is now five years of age. When first seen she looked about a year old. She was stupid; the tongue was large, thick and protruding; the lips were thick; the hair thin, dry and scanty; the skin mottled and cold; the temperature subnormal—93° to 96°, and there was eczema of the face. She had nine teeth, which were somewhat decayed; the fontanelle was open, and the thyroid gland could not be palpated. She was 25¾ inches in height. There was a marked increase of the subcutaneous tissues of the body—the circumference of feet at the instep was 6½ inches; that of the hands, 5 inches. She could not walk, could say only "Ma," and expressed no desire for nourishment. The improvement was marked within a few weeks after taking thyroid gland. She is now 33 inches in height—a gain of 7¼ inches; the feet measure 5 inches, the hands 4¼ inches. Her tongue, skin, and temperature are normal. She has a full set of good teeth, and a good head of hair. After a few weeks' treatment she began to point for what she desired. She now sings, talks and walks and is even intelligent enough to run errands. She has become very cleanly in her habits, and looks bright, and one would not think her a cretin. The child shows, as does Dr. Packard's case, a curvature of the spine. After taking the thyroid for five months she grew 2¼ inches; the following month, doubling the dose, she grew 2 inches, and her legs, in consequence, became so bowed that I was obliged to stop this treatment for two weeks. I then resumed it, giving a smaller dose. She has been taking from one-fourth to one-half grain of glycerine extract of thyroid gland three times a day for eighteen months, with the exception of two weeks. At that time I put her upon the compound syrup of hypophosphites, which she has continued taking along with the thyroid extract. She is still growing, although very slowly (about one-sixth inch a month), and her legs are less bowed today than ever.

EXTERNAL DIPHTHERIA.

Dr. L. M. Allen read a paper upon "Diphtheria of Penis Following Circumcision, with Later Involvement of Upper Respiratory Passages." Joseph T., aged two years. When first seen there was glandular enlargement at the left angle of the jaw and yellowish discharge from the prepuce, which was inflamed. The adenitis and balano-posthitis had existed for several weeks. The child was admitted to the Children's Hospital the day after it was first seen. It was feverish; the prepuce less inflamed; tonsils much enlarged but free from membrane.

Between the time of admission and of operation the child was more or less feverish, the temperature rising to 103° F. the day before operation.

Five days later Dr. J. Ashhurst, Jr., operated on the boy. Nothing of importance was noticed either in the condition of the throat or of the circumcision wound during the three days following that child remained in hospital. The day after leaving the hospital the temperature was 102° and the wound was considererably inflamed. Next day the wound and glands penis showed patches of membrane. Membrane increased on the glands, but none appeared elsewhere until a week after leaving the hospital, when, while the membrane was disappearing from the penis, a patch was noticed on the inside of the lower lip. There was none on the tonsils. Next day the membrane spread to the inside of the cheeks. There was a spot on the tongue.

The following morning the membrane had spread rapidly, both tonsils being involved. A report from cultures made the preceding day stated that the one from the mouth was positive, that from the penis was doubtful. Signs of pneumonia had developed and in spite of heart stimulants, antitoxin and local treatment, the patient died nineteen days after the operation.

Dr. Jopson.—I remember the case very well, as I saw it first in the dispensary. The child was suffering from acute balano posthitis, and had a long prepuce, which could not be retracted. At the same time there was this involvment of the cervical glands and some inflammation of the tonsils. I therefore advised the mother to postpone any radical operation, such as circumcision, gave her a sedative application for syringing and local use, and advised her to return in a few days, but as the surroundings at home were not very favorable and they were anxious to have something done at once for the condition, the child was later admitted to the hospital. There was at that time, no membrane visible, but apparently a subacute or chronic inflammation of the tonsils and an enlargement of the glands, which I looked on as secondary to the tonsillar disease. The condition was suspicious, and with the history of preceding fever I cannot help feeling that the inoculation of the circumcision wound was secondary to an infection of the throat.

Dr. J. Dutton Steele.—I think Dr. Allen's suggestion is an interesting one. I mean whether or not the Klebs-Löeffler bacilli could have been quiescent in the throat before operation. It is a well known fact that they can be in the throat without symptoms. It might have happened that the child was resistant to them before the operation; then the circumcision wound was a place of less resistance, and bacilli was carried from the throat to the penis by the child's hands. The ensuing attack of diphtheria rendered the throat and mouth susceptible and the disease broke out there in turn.

Dr. Cleeman.—Last fall there was a child taken to the Children's Hospital, who had a lacerated wound of the eye-lid. The parents then asked me to take charge of the child. In a short time membrane formed on the wound and the throat became similarly affected. The child died in a few days of diphtheria. The only point of interest is the local trouble in the wound at the same time the condition showed itself in the throat. I do not know whether the eye was the first to show infection, though I noticed it first then, but I think it is likely since the wound had occurred first that probably that was the mode of entrance of poison into the system. I did not make any cultures of the membrane.

Dr. J. P. Crozer Griffith.—It seems to me we are going a roundabout way to account for the infection. Of course it is perfectly possible that the germs might have lain dormant in the child's throat, reaching this locality before it entered the hospital. We can hardly assume that the system was already suffering from a diphtheritic infection all through the signs of general illness, and yet that there was no local manifestation, and that finally the disease broke out from inside, so to speak, on the penis and only after a very long time finally developed membrane in the throat. It is much more likely that the diphtheria of the penis was the primary seat of infection. If I remember rightly there was diphtheria in the hospital at the time. The most logical conclusion is that the child simply received a wound in the hospital and since this was largely an uncovered wound, there developed a localized diphtheria; that then after a prolonged persistence of the lesion there, only, there was a rapid general infection with membrane on the oral and last the pharyngeal mucous membrane. If this is true it makes the case of exceeding interest. Authorities usually state that diphtheria of wounds is comparatively uncommon and only seen in the most virulent cases of pharyngeal diphtheria, and nearly always as a secondary matter. I cannot now recall any case similar to this, where there was a primary appearance of diphtheria elsewhere in the body and then later an infection of the pharynx. Doubtless, however, there are numbers reported.

Another statement in one of the text-books on diseases of children, is that probably most of the reported cases of diphtheria of wounds or of mucous membrane other than the throat and nose have been instances of pseudo-diphtheria. In the case reported to-night we have every reason to believe that we are not dealing with an instance of pseudo-diphtheria. Certainly the cultures from the mouth were not pseudo-diphtheria, and although those from the penis were doubtful, it is altogether unlikely that there was a streptococcus infection of the penis and Klebs-Löeffler infection of the mouth at the same time. This case was not even a buccal diphtheria primarily. Buccal diphtheria occurs as a rule only in the most malignant pharyngeal cases. This case was a labial diphtheria. After the infection of penis came the infection of the lip. The day I saw the patient the membrane had already spread to the pharnyx. There was a hard, dense, swollen lip, with a gray-white, intimately adherent membrane upon it resembling not in the slightest degree any ulceration of the mouth, except the diphtheritic. Then by the next day, Dr. Allen tells me the whole lining of the cheeks was involved as well.

Dr. Price.—Bearing upon the question of external diphtheria, I have cognizance of a case in one of my own patients who went to New York to spend the winter and while there she underwent some treatment for retroversion and developed a typical diphtheria of the vagina. The gynæcologist who was treating her called in a well known physician, and they together found that the diagnosis of diphtheria was undoubted; the Klebs-Löeffler bacilli were found, and the case ran a course of eight or ten days and got well without any infection of the respiratory passages at all. The physician in charge admitted that he had, within twenty-four hours of examining her, came in contact with the mouth of a child who had laryngeal diphtheria. It was probably owing to carelessness on his part that it was transmitted.

Dr. F. A. Packard.—Dr. Allen's case reminds me somewhat of a case I saw at the Children's Hospital three or four years ago. This child also was circumcised, but a membrane appeared simultaneously on the wound and in the throat. They were infected within twenty-four hours of each other, so far as we could tell. The child had been previously well and everything had gone smoothly until forty-eight hours after operation, when there was lighting up of diphtheria on both the pharyngeal and faucial mucous membrane as well as in the wound.

Dr. L. M. Allen.—The question of the existence of the bacilli in the throat without any clinical symptoms, is quite interesting. Probably those who have tried to make use of Board of Health culture tubes have found out the efficiency of this method. I remember one instance in which I made cultures from throats of two cases of diphtheria, and, at the request of Board of Health, sent other cultures from people in the same house. The report was returned that they contained the diphtheria bacilli, much to my disgust, and the bacilli continued to be there for three or four weeks longer with no clinical signs whatever. In regard to the case I have reported you can't say how it received infection. The child was in a day nursery, and was very apt to get it there, and this might have been the case. Of course the only way you could possibly have settled that question would have been by taking cultures of the child's throat before it was admitted to the hospital. It would be a good idea to take cultures from all throats before they are admitted to the hospital. In a case, for instance, like this circumcision, a week or ten days' delay would not have made any difference, and you would be on the safe side in some cases, if not in all of them.

Motor Aphasia at the Beginning of Scarlatina.—Brasch (*Berliner klinische Wochenschrift*) reports a case of scarlatina in a girl, aged three and one-half years, in which motor aphasia appeared on the fourth or fifth day of the eruption, thus differing from the usual time of appearance, which is late in the disease, ordinarily about the time of appearance of renal symptoms, and is a symptom of uræmia. In the case reported the speech-disturbance disappeared after fifteen days. The author has searched the literature, but has found no other case of aphasia at the beginning of scarlatina. The observation shows that the prognosis of aphasia in these cases in children is good.—*American Journal of the Medical Sciences.*

Current Literature.

MEDICINE.

Holt, L. Emmett: A Case of Pemphigus Neonatoram Associated with General Infection by the Staphylococcus. (*New York Medical Journal.* Vol. xlvii. No. 6. 1898. *International Medical Journal.* Vol. vii. No. 5.)

The author discovered the following condition in an infant nine days old admitted to the Baby's Hospital. There were many bullæ over the shoulders, buttocks, and thighs. They ranged from a quarter of an inch to an inch in diameter. There were none upon the chest, back, feet, or hands, and only two upon the face. Some of them had evidently just appeared. These were flaccid with slightly turbid contents. Some had ruptured, revealing a deep red base which consisted of the cutis vera. Others showed superficial ulceration and were discharging pus. The child had a severe purulent ophthalmia discharging pus freely. The navel was normal; the pulse was good and the temperature was 98.2°. The bacteriological examination of the pus from the eye showed a large quantity of pus organisms, but no gonococci. Examinations from the pus of one of the bullæ on the neck, and another on the thigh, showed pure culture of the staphylococcus pyogenes aureus. The child's condition rapidly grew worse. The temperature became elevated, a semistupid condition manifested itself, new bullæ constantly appeared and developed rapidly. The child died from exhaustion about sixty hours after admission.

The autopsy showed the following conditions: The brain was moderately congested; the larynx was congested and covered with a fine grayish film which stripped off easily. There was no naso-pharyngeal membrane. There were large areas of atelectasis in the lower lobes of both lungs with emphysema anteriorly, and numerous punctate hemorrhages over the surfaces of both lower lobes. The general congestion was extreme. There were numerous punctate hemorrhages in the thymus gland. The liver and spleen were swollen and congested; the kidneys intensely so. The suprarenals were congested and showed small hemorrhages. The mucous membranes of the œsophagus and stomach were slightly congested, and Peyers patches and the solitary follicles of the colon were swollen and intensely congested. The mucous membranes were generally normal. Cultures from the lungs showed staphylococcus pyogenes aureus and the bacterium lactis ærogenes. Cultures from the spleen and left kidney showed streptococcus longus; from the liver, streptococcus longus and staphylococcus pyogenes aureus. The bullæ upon the skin showed pure cultures and staphylococcus pyogenes aureus.

While the author believes in the syphilitic origin of a certain percentage of cases of this condition, he feels that in some cases the condition is an acute general infection, and that the bullus eruption is only one of the manifestations of the condition. In the case above reported no history of syphilis was obtainable, and the bacteriologic investigations strongly suggest a septic origin.

Hutchinson, Jonathan: Inherited Syphilis. (*Edinburgh Medical Journal; Ref., Archives of Surgery.* 1898. Vol. xlv., No. 515.)

The author lays stress upon the following points, based upon his own most extensive experience :—That the subjects of taint often grow up into healthy men and women. That complete exemption from other indications of taint does not exempt from the risk of an attack of keratitis. That it is not unusual for one child in a family to suffer very definitely, whilst all the others apparently escape. That it is very exceptional for any considerable series of children to suffer in succession from inherited taint. That the mother of one or more syphilitic children may herself remain throughout quite free from symptoms, and apparently in good health. That a condition of general arrest of growth may be one of the consequences of inherited taint. That it is possible for children born within dangerously short periods of the primary disease, in one or both parents, to entirely escape the inheritance. That although, as a rule, after keratitis, choroiditis, etc., the recovery is permanent, there are exceptional cases in which certain progressive changes continue. That it is by no means improbable that some who really inherit taint never, either in infancy or subsequently, show any symptoms. That the children of those who have suffered from inherited syphilis are usually quite healthy. That syphilitic infants may be suckled by their mothers, as a rule, without risk to the latter (Mr. Hutchinson's whole experience affords no trustworthy exception to either of these last two propositions).

Haynes, W. H.: Obstetrical Paralysis of Infants. (*Brooklyn Medical Journal.* 1897. Vol. xi., No. 5.)

There are three kinds of obstetrical paralysis affecting newborn children, namely, that of the face, arm, and lower extremities. The first and last of these forms are so extremely rare that the term "obstetrical paralysis of infants," has come to be wholly associated with that of the arm, which is the form to be considered in this paper. Again, an apparently similar condition of the upper extremity may be seen where there is a fracture or a dislocation of one or more of the bones of the affected extremity; these, also, are excluded, on account of the nature of the lesion, the paralysis being secondary in character, and the cure of the originating lesion cures the apparent loss of power, but limit myself to the class of what may be termed true obstetrical paralysis of the upper extremity in infants, where the lesion is solely in the mixed, cervical nerves and brachial plexus.

The author reports three cases: a relatively early one, one in which was slow improvement, and another in which repair was progressive and continuous. It is generally brought about through difficult or instrumental deliveries, necessitating certain violent obstetrical manœuvers in which the forceps have been used; traction made on the head or arm; the use of the finger in the armpit in the form of a hook, making strong traction; a pressing of the shoulder under the symphysis pubis; replacing the arm; assisting delivery of the after-coming arm or head, as in the presentations of the breech; or, if the attendant has been forced to extract the body, after delivery of the head, by exerting great tracting force. It may happen to the most proficient, such as Tarnier, and in the most simple cases, for Dr. Shaw has seen two cases in which no manipulations were used, and where the condition was simply due to the extension and compression of neck and shoulders under the symphysis pubis, as occurs in natural labors only a little while unduly prolonged. Erb says it is especially due to the energetic application of the so-called "Prague grip," in which the fingers are applied, like a fork, over the back of the neck and endangering the brachial plexus by energetic traction and compression. It may be bilateral, and 75 per cent. of the cases seen by Starr were of the left arm. He says: "It is the pressure of the obstetrician's fingers which causes the injury in the majority of cases, and I have noticed that in 75 per cent. of the cases seen the paralysis was in the left arm, which finds its explanation in the greater length of the middle finger of the hand which is doing the damage. In the act of traction there is a tendency for the obstetrician to flex the fingers, and thus the tip of the finger is pressed deeply into the side of the child's neck. The cause being thus evident, the complicating affection may be avoided by a little care."

The lesion produced by any of these manipulations may be simply a stretching of the nerve tubes, laceration, complete rupture or compression due to direct pressure from local œdema, intra or extra hemorrhage about the nerve sheath, and is commonly located in the fifth, sixth, and seventh lower cervical nerves, which go to form the outer and posterior cords of the brachial plexus, causing the form of upper-arm palsies, though the inner cord may be also involved, when we have the whole upper extremity involved.

Usually the following muscles are involved: the deltoid, biceps, brachialis anticus, infraspinatus, supinator longus, and occasionally the extensors of the hand, causing the following characteristic appearance, which is usually very soon discovered after birth: the arm hangs perfectly limp alongside of the body; forearm extended on arm and rotated inwards; the child makes no movement whatever; at this time there is no apparent sensibility and no pain. If the arm be lifted and then let go it falls at once into this position; the paralyzed muscles are relaxed, and their opponents are not rigid, so that the joints are freely movable; there is loss of all electrical excitability, both galvanic and faradic. Later, in certain cases (those of the upper-arm type) motion in forearm and fingers will be seen, slow atrophy of the paralyzed muscles ensue, making them feel soft and yielding. This may not be apparent owing to the deposit of fat in fairly healthy children. Some rigidity in the unaffected muscles correspondingly appears, but permanent rigidity rarely develops; sensibility becomes normal from development and repair; first galvanic excitation returns, and later faradic; normal development is retarded, and after a few years there may be contractions in cases which do not recover.

From the foregoing description of the condition it will be readily seen that the diagnosis at the time of birth is very easily made, though it may be complicated by a facial (Bell's) paralysis, due to the same cause (forceps), a fracture, or dislocation—which also will be readily made out and remedied. Later on (after six months) it may be necessary to differentiate it from some form of cerebral palsy of infants, but in these cases there will be hemiplegia, a diplegia, spastic condition of the muscles, reflexes increased, no change in electrical reaction, with probably a history of convulsions, mental defect or general disturbance, flexions, contractions of joints, rigidity, and no loss of sensation.

The prognosis varies with the extent and character of the lesion and early application of proper treatment. It is variously stated by various writers, the early ones stating it as grave, the later ones, under proper treatment as good; this discrepancy being due to its more frequent and early recognition now and, consequently, earlier application of proper treatment. It ranges from complete spontaneous recovery after a few months to only partial recovery after several years, and depends on the causes first stated in this section; as, for instance, in cases of effused serum or blood, when it is absorbed recovery ensues.

In the early stages the treatment consists in proper bandaging, flexing the elbow, which also assists in allowing repair of the nerves by holding up the forearm and so preventing dragging or further stretching the nerves: in addition using friction, massage, douching or sponging, and after a time encouraging motion. After a few weeks, Duchenne says very early, the use of electricity must be added. If response can be had from the faradic current, use it; but this is usually not the case, so that the first application where the case is seen early will be of galvanism, mild, constant, and interrupted currents for short sittings, and later on, when faradic reaction returns, both together. As the child grows older gymnastic exercises and kindergarten methods can be added.

HYGIENE AND THERAPEUTICS.

Comby: Infantile Eczema and its Treatment. (*Rev. Internat. de Méd. et de Chirurgie.* Vol. ix., No. 5).

The importance of this subject lies in the facts that eczema is more frequent and more rebellious in infants than in older persons, and that it may give rise to various grave complications—

cutaneous or visceral infections. As an etiological factor, by far the greatest weight is to be given to auto-intoxication resulting from gastro-intestinal disturbances due to bad feeding. Consequently eczema is far more common among bottle than among breast-fed infants. It affects the face especially, but may involve the neck and body; and it may remain dry, but is more often weeping and crust forming. Inpetigo, ecthyma and abscess formation frequently occur as complications, and make the diagnosis more difficult. The occasional development of such sequelæ as meningeal, pulmonary or intestinal diseases renders the prognosis sufficiently grave to demand the greatest care in the treatment of every case. Therapy must be general, including care of the food, drink, air, and personal hygiene; also local, prohibiting bathing, removing all crusts and applying, preferably, a dry dressing of powdered starch, talcum, lycopodium, bismuth, salicylic acid and menthol. Aristol and dermatol has also given good results in soothing the terrible itching, protecting the irritated surfaces and giving the epidermis a chance to repair. Ointments of lanoline or vaseline with oxide of zinc or bismuth may also be employed. But it is the union of the general and local treatment that brings success.

Wingrave, Wyatt; Starch Digestion. (*Lancet.* 1898; No. 19).

After extensive experimentation with numerous starch digesting ferments, the author summarizes as follows: 1. That taka-diastase is the most powerful of the starch or diastatic ferments and it is most rapid in its action—*i. e.*, it will convert a larger amount of starch in a given time that will any other amylolytic ferment. 2. That taka-diastase seems to be less retarded in its digestive action by the presence of the organic acids (butyric, lactic, acetic), and also, by tea, coffee and alcohol, than are saliva and the malt extracts. This is an important point in pyrosis. 3. That all mineral acids, hydrochloric, etc., quickly stop and permanently destroy all diastatic action if allowed sufficient time and if present in sufficient quantities. 4. That taka-diastase and malt diastase have, like ptyalin, no action upon cellulose (uncooked starch). All starch food should therefore be cooked to permit of the starch ferment assisting nature in this function.

SURGERY.

Tordeus: A Case of Suppurative Perinephritis; Incision; Cure. (*Journal de Clinique et de Thérap. Infantiles.* Vol. v., No. 29.)

A little boy of six entered the author's hospital service without any history, but with intense pain in the right hypochondrium. The abdomen was somewhat enlarged, the temperature 38.7° C., the spleen palpable, and an evident feeling of resistance present over an elongated area behind the liver, while the vertebral column showed nothing abnormal. The fever became intermittent and the pain grew worse. Finally fluctuation became evident, and the needle drew pus. Operation was done at once and discovered a large peri-renal pocket containing greenish yellow, laudable pus. The cavity was repeatedly washed, then packed and later drained. Cure was complete within two weeks.

Hutchison, J. Alex.: Appendicitis in a Child. (*Montreal Medical Journal.* 1898. Vol. xxvii. No. 2.)

S. P., aged two years and six months, was admitted to the Montreal General Hospital, July 3, 1897, suffering from acute appendicitis. Two days before admittance the mother noticed that the child appeared to be suffering acute pain, would suddenly stop playing and begin to cry. There was some vomiting and diarrhœa. This continued, and on the third day the child was seen by Dr. Geo. Berwick, who diagnosed the condition and advised operation. In the evening, and in the absence of any immediate symptoms of danger, operation was postponed till the following morning. At the operation a gangrenous appendix with a large perforation at the distal extremity was found in a large cavity well walled in, which was full of pus and involved the pelvis. After exercising the diseased tissues and wiping out the cavity, it was packed with iodoform gauze and a large tubé was placed in the wound. After operation for a time the patient had a high temperature and considerable abdominal distension. The following day the general condition was improved. Under chloroform hernia of the intestine was returned through the incision. The case made an uninterrupted recovery from this time. So far as the author knows, this is the youngest case successfully operated upon with recovery. In addition, it is not generally thought that children of this age suffer from this condition, one which could be easily overlooked without a careful abdominal examination.

ARCHIVES OF PEDIATRICS.

VOL. XV.] SEPTEMBER, 1898. [No. 9.

Original Communications.

THE FORCIBLE REDUCTION OF DEFORMITY IN POTT'S DISEASE.*

BY FRANK E. PECKHAM, M.D.,

Orthopedic Surgeon, Rhode Island Hospital, Providence, R. I.

The forcible reduction of deformity in Pott's disease as performed and described by Chipault and Calôt has been of the greatest interest to medical men the world over. It has caused much discussion abroad and is now engaging the active attention of American surgeons. It has been demonstrated that the immediate reduction of the deformity is a safe procedure, the discussion hinging upon the ultimate result, whether the spinal column will be held in its corrected position by bony anchylosis or whether, with the removal of support, the deformity will recur. There is much to be said upon both sides, but all arguments are valueless and the only solution will be to await the facts, then there will be a solid foundation upon which to stand and we shall know how much can be done and what cases are most favorable for this treatment. Although it is too early yet for these ultimate results, the preliminary work, as reported by various observers, has taught us a great deal, and if this method is to become a recognized procedure, will enable us at once to treat all suitable cases with the utmost confidence.

As to the cases suitable for this operation it can easily be demonstrated without ether by means of extension and direct pressure, gently applied, whether or not there is any yielding. If there is, it may be inferred that the deformity is susceptible to treatment. Where there is firm anchylosis I should consider forcible correction contra-indicated. In the cases where paraplegia is present, I believe it is an operation that can be urged with the greatest confidence, because the mortality rate is practically nothing and the results are excellent, while a laminectomy is a very serious operation.

---

*Read by invitation before the American Orthopedic Association at the Annual Meeting in Boston, May, 1898.

My work in this line began in October, 1897.

CASE I.—The first patient was a boy ten years of age. He entered the Rhode Island Hospital in March, 1897, with Pott's disease of two or three years' duration. There was also complete motor paralysis of the lower extremities which had been present for seven or eight months before entrance. The patient was placed on a Bradford frame and extension applied to head and legs. As time went on the boy became more emaciated, sensation disappeared from the legs and in May, laminectomy was considered with Drs. Mitchell and Munro in consultation. At that time it was thought best not to operate. His condition remained unchanged up to October 18, when the first stretching operation was done. The patient, after being etherized, was placed across two padded blocks, one being at the level of the top of the sternum, the other at the level of the anterior superior spines of the ilium; the body in this way being raised

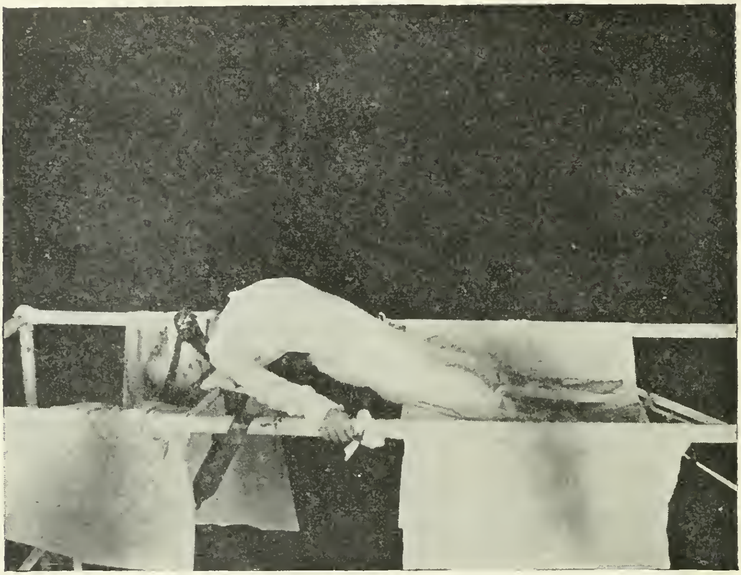


Fig. 1. PATIENT IN POSITION ON A GOLDTHWAIT FRAME.

about six inches above the level of the table. One assistant then grasped the thighs firmly, while others pulled on the head and arms. While thus being stretched lengthwise, the operator forcibly pushed the spine down into place. When it gave way, the crackling and snapping was distinctly heard and could be felt by all whose hands were in contact with the body. Plaster

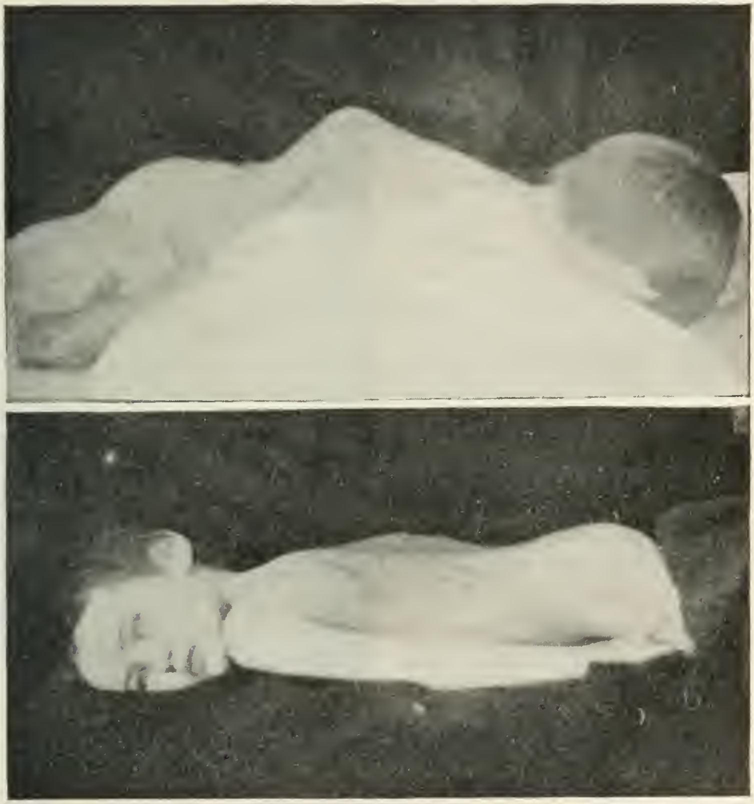


Fig. 2. SHOWING PATIENT II., A GIRL OF SEVEN YEARS, BEFORE AND AFTER TREATMENT.

was applied from the hips up to the level of the axillæ, then the patient was suspended, by attaching the head piece to the cross bar of a Sayre apparatus and the head and neck included in plaster. There was only a slight amount of shock following this operation, which rapidly disappeared.

On November 24th, sensation had returned to both legs even to the tips of the toes, and the cremaster reflex was active. From the first operation the ankle clonus acted in a very peculiar manner. At one time it would be improved or even absent in one foot but not in the other, and this improvement would alternate from one foot to the other. This erratic symptom continued, but slowly improved until January 5, 1898, when, although clonus was present, it could be stopped instantly by a voluntary muscular exertion of the patient.

January 21, 1898. The spine was again stretched and plaster reapplied as before, this being the third time.

March 9th. A little less than five months from the first operation, the clonus had completely disappeared.

April 23d. Plaster was reapplied without ether, with the patient lying upon a frame according to the method described by Dr. Goldthwait. This time the head was not included in plaster and the boy was allowed to sit up for the first time. In this case the paralysis was considered to be due to a thickening or to adhesions about the cord and the treatment has been entirely successful.

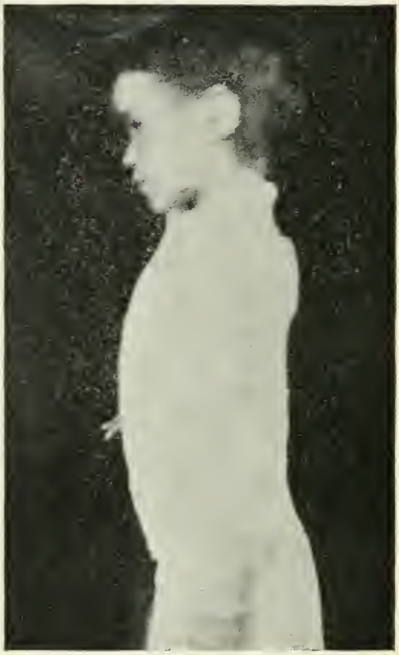


Fig. 3. PATIENT II., STANDING ERECT IN PLASTER OF PARIS.

CASE II.—A. B., a girl of seven years. Entered Rhode Island Hospital, May 4, 1897, with a marked kyphosis in mid-dorsal region. Duration of disease two and a half years. On entrance there was an abscess each side of the spine extending from above the level of the deformity to the bottom of the sacrum. Child was in a septic condition, with a weak, rapid pulse, extremely emaciated and looking like death. The abscesses were opened on day of entrance, a quart of pus evacuated from the right side and a pint from the left. Improvement was immediate and continued until child was in excellent condition, a small sinus remaining in right lumbar region.

October 27. Five and a half months after abscess operation forcible reduction was done, using Calôt's method. The spine yielded with very loud crackling and went down easily, but could not be completely straightened, a very slight deformity remaining. There was severe shock for the following two or three days and patient seemed at the point of death. It was necessary to remove the plaster from the head and loosen the jacket for comfort. On the third day, however, the patient rallied and there was a rapid return to a good physical condition.

The mistake here was in attempting to reduce so great a deformity at one sitting, consequently at the second reduction, November 19, only a small amount of correction was attempted. At this and subsequent operations there was practically no shock.

On December 29th a third reduction was made and again on February 4th and March 18, 1898. The last two times, although there was comparatively a very small amount of deformity remaining, it was impossible to completely obliterate it by this method.

On April 22, the patient was placed upon a frame as described by Dr. Goldthwait, extension made without ether and plaster applied, but the slight deformity shown in photograph still remains, and probably this represents the permanent result.

(*To be continued.*)

Hernia in Children.—Dr. Coley thus speaks of operation for hernia in young children: "I believe it to be a good rule never to advise operation in children until a truss has been satisfactorily tried for a reasonable time, *e.g.*, one or two years without benefit. There are, however, important exceptions to this rule: (1) In femoral hernia operation may be at once advised; for the reason that the chances of cure by means of a truss are too slight to be considered. (2) Irreducible or adherent omentum (rare in children) and reducible hydrocele may furnish sufficient reason for early operative interference. (3) There are, furthermore, a number of cases, especially in dispensary practice, in which the rupture cannot be satisfactorily retained on account of insufficient care on the part of the parents, and such cases may with profit be subjected to immediate operation."—*Medical News.*

THE URINE OF HEALTHY INFANTS AND CHILDREN.*

BY FRANK SPOONER CHURCHILL, M.D.,

Associate in Diseases of Children, Rush Medical College, in Affiliation with the University of Chicago ; Professor of Pediatrics, Chicago Polyclinic.

The factor of excretion in the human economy is such an important one, and the well-being of the subject depends to such an extent upon its proper performance, that the kidneys through which, together with the intestinal tract, it is chiefly accomplished, have received much careful study—at least in adults. Comparatively speaking, however, little exhaustive work on the urine of children has been done, and when, in the routine analysis of urine from his patients one seeks for a normal standard, he finds but little physiological with which to compare his specimens pathological, and has difficulty in determining to what extent proper renal excretion is going on, certain only that in this direction something is wrong, though exactly what he is unable to determine.

I have in my own practice felt the need of a normal physiological standard of the urine of children with which to compare the urine of abnormal cases, especially those more or less obscure, and I have been investigating the urine of a few healthy infants and children, and now lay the result of the work before the Society for discussion and as a contribution for future reference.

The subject seems to me an important one. While we do not necessarily detect actual present organic disease of the kidney by careful analysis of the urine in all our patients, will not such analysis often clear up obscure and doubtful cases ? Will it not give us valuable information as to the extent to which metabolic activity is proceeding ? May not the study of many such analyses possibly reveal tendencies latent in early life, but subsequently developing into apparent and actual disease ? And may we not from this study possibly glean information of value to us, in seeking to check these tendencies, in helping our patients overcome what is so often an hereditary handicap ?

I have made no attempt in this paper to discuss the urine from abnormal and unhealthy children, but have limited myself strictly to the healthy. My investigations have been made upon seventy infants and children ranging in age from one day to twelve years, forty-eight girls and twenty-two boys, and the results classified as to age and averaged. One hundred and forty-six specimens have been analyzed, it being better to examine two or more samples from a limited number of cases than a single specimen from a larger number of children. The results have justified this method of procedure, as considerable variations in the amount of urine passed at different times have been noticed.

---

* Read before the American Pediatric Society Cincinnati, June 1, 1898.

Observations have been made upon the following points: Total amount of urine in twenty-four hours, color, reaction, specific gravity, presence or absence of albumin and sugar, percentage and total urea, percentages of the chlorides, phosphates and sulphates. The sediment was examined macroscopically and microscopically. The ferrocyanide and nitric acid tests were employed for the albumin, the urea was estimated by the hypobromite method—Doremus' ureometer being used; the percentage of the chlorides, phosphates and sulphates determined by centrifugal analysis, as recommended by Purdy, the tubes being revolved three minutes, at a speed of 1100 revolutions per minute.

The urine was obtained chiefly from children of the Chicago Half-Orphan Asylum, and, notwithstanding the efficient care and co-operation of the nurses and assistants, it was, of course, impossible to collect accurately the total twenty-four hour amount in all cases attempted. Specimens about which there was any doubt were rejected, and the averages are based only on those known absolutely to be correct.

Examination in detail of the results as given in the tables shows several interesting points, which will be briefly considered.

AMOUNT.—The daily amount of urine passed by my cases is much less than that recorded by most authors whom I have been able to consult, except Herz, whose analysis upon sixty cases—thirty girls and thirty boys, between six and fourteen years of age—correspond approximately with my own. A comparison of my results with those quoted by Rotch and Holt, however, shows a marked discrepancy, for which I am unable to account. I should be suspicious that I had not been successful in getting the whole amount in my cases had I not taken especial care in this direction. Moreover, the specific gravity confirms the amount.

Age.	Weight.	Sex.	Total Specimens.	Amount.	Specific Gravity.	Urea.	Total Urea.	Chlorides.	Phosphates.	Sulphates.	Amount to 1 kilogrm. Body Wt.	Urea to 1 kilogrm Body Wt.
3 yrs.	16.8 klg.	2 M	5	358 c.c.	1024 0	2.2 PER CENT.	7.87grm	12.5 PER CENT.	12.00 PER CENT.	1.08 PER CENT.	21.3 c.c.	.468 grm
4 "	16.9 "	7 M 4 F	31	299 "	1027.1	2.9 "	8.67 "	11.17 "	9.22 "	1.41 "	17.6 "	.513 "
5 "	16.8 "	1 M 7 F	17	392 "	1024.5	2.6 "	10.19 "	10.37 "	8.89 "	1.13 "	23.3 "	.606 "
6 "	16.7 "	2 F	2	405 "	1023.0	2.7 "	10.94 "	11.00 "	6.50 "	1.13 "	24.2 "	.655 "
7 "	20.9 "	1 M 3 F	4	564 "	1018.0	1.1 "	6.20 "	7.00 "	5.63 "	0.85 "	26.9 "	.296 "
8 "	22.6 "	2 M 7 F	20	628 "	1021.1	2.2 "	13.82 "	9.16 "	7.32 "	1.11 "	27.8 "	.611 "
9 "	26.2 "	1 M 9 F	25	731 "	1020.7	2.3 "	16.81 "	8.46 "	7.61 "	1.10 "	27.9 "	.641 "
10 "	27.5 "	2 M 6 F	15	768 "	1023.5	2.1 "	11.28 "	9.29 "	6.85 "	1.10 "	27.9 "	.592 "
11 "	27.2 "	1 M 3 F	7	716 "	1018.8	2.3 "	16.83 "	10.03 "	7.50 "	0.92 "	26.3 "	.618 "
12 "	36.4 "	2 M 3 F	8	829 "	1021.5	2.8 "	23.21 "	9.27 "	6.77 "	1.00 "	22.7 "	.637 "
Totals		19 M 44 F	134									

SPECIFIC GRAVITY.—We see here a higher average than is given by the authors already quoted, a condition we should naturally expect in the urine of children passing but a small amount. Had we failed to collect the total amount, we should expect a lower specific gravity than is recorded, inasmuch as even those cases which have been thrown out had a fair admixture of night and day urine.

Reliable as are the observers quoted, should we not expect to find a comparatively high specific gravity in the urine of children of this age, at a period of great physical activity with consequently greater elimination of urea? I shall recur to this point below in speaking of the latter element.

The specific gravity of the one young infant which I have been able to record is low, coinciding with the well-known observation at this period; it ranged from 1001 to 1005 from the twelfth day to four weeks. It is, however, generally higher during the first two days of life, before the establishment of the breast milk. It drops after this, and continues low throughout the first year, owing to the fluid character of the infant's food. During the second year, solid food being added to the diet, the specific gravity rises; and in four cases, aged respectively twelve, thirteen, eighteen and twenty months, I found it ranging from 1026 to 1030, the urine being a mixture of the day and night eliminations.

UREA.—The estimation of this constituent is perhaps the most important of all the urinary solids, being as it is an index of general metabolic activity. As we should expect from their greater activity, and as Purdy and Foster state, we find the urea excretion in children relatively higher than that in adults. The low percentage noted during early infancy is, of course, due to the quiescent state of the child. Martin and Ruge, however, report wide variations in single specimens during the first ten days of life, ranging from 6 per cent. to 1.9 per cent. Schiff also gives wide variations, placing averages at from .28 per cent. to 1.7 per cent. during the first fourteen days. Why there should be such a wide range in the excretion of this substance at a time of such quiescence, it is difficult to see. Possibly greater metabolic activity after nursing may account for it. I have no statistics upon the relative amount of urea in urine passed just before, just after and some time after feeding. The few observations I have made at this age showed, without exception, very low percentages, from

Age.	Weight.	Sex.	Amount in Single Specimen.	24 Hour Amount.	Specific Gravity.	Urea.	Chlorides.	Phos-phates.	Sulphates.	REMARKS.
1 day	3.18 kil.	F	3 c.c.			.4 PER CENT.				
12 days	3.86 K.	———	36 c.c.	———	1003	.1 "	Passed	at	12 M.	
3 wks.	4.14 K. One	———	———	———	1001	.5 "	"	"	9 A.M.	
3½ "	4.25 Infant	——— M	30 c.c.	———	1005	.2 "	"	"	4 P.M.	1 hour after breast
4 "	4.47	———	23 c.c.	———	1004	.1 "				
1 year	9.98	———	9 c.c.	———	1021	2.6 "				
1 "	———	———	———	———	1026	2.7 "	12 PER CENT	16 PER CENT.	1.75 PER CENT.	Dentition slow.
1½ yrs.		F	———	195 c.c.	1030	2.5 "	18 "	11 "	1.25 "	1 Specimen
13 mos.	9.76 kil. (21½ lbs.)	F	———	———	1026	2.3 "	11 "	11 "	1.00 "	Mixture night and day urine
20 "	———	——— M	———	290 c.c.+	1028	2.8 "	16 "	13 "	1.75 "	
20½ "	———	———	———	325 c.c.+	1026	2.1 "	8 "	12 "	1.00 "	
2 yrs.	14.07 K. (31 lbs.)	M	———	450 c.c.	1020	1.7 "	6.5 "	6 "	1 "	
		3 M 3 F	12 Specimens in all.							

1.20 per cent to .4 per cent.—lower than those cited. After the first year it rises, and from three to twelve years my 133 specimens show a higher general average than that usually given. I can but think Verordt's percentage, based on only seven cases, is too low. He records it at 1.1 per cent. to 2 per cent., four being below 2 per cent., one 2 per cent., and one 2.6 per cent. and one not given. This represents the adult average, whereas, so great is the physical activity of the growing child, so active is his metabolism, that a large amount of urea is formed, and while it may be argued that most of his nitrogenous food goes to the building up of the rapidly growing body, and thus the amount of urea formed in the urine would naturally be less, it would seem more rational to expect a greater elimination of this substance. Not only are my average percentages higher than the average given for adults, but individual cases show a remarkably high percentage of elimination of urea, eight children having over 3 per cent, the highest being 3.7 per cent.

The amount of urea per kilogram of body weight, while slightly higher than the ratio given for adults, is lower than that given by other observers, as we should expect from the smaller amount of urine.

CHLORIDES.—The chlorides were found quite constant at about 11 per cent. up to seven years, after which they were about 9 per cent.

PHOSPHATES.—The phosphates were found to be from 8 to 11 per cent. from 3 to 5 years; 5 to 7 per cent. from six to twelve years—the adult range being about 8 per cent. It has been suggested that the smaller amount of phosphates found in the urine of children, is due to the fact of the phosphoric acid being retained in the body for the growth of bone. One specimen from a year old boy showed 16 per cent., and as he was somewhat slow about teething, though otherwise perfectly healthy, the question suggested itself as to whether substances which normally go to build up the teeth, were being eliminated as phosphates, and if so, why; digestion was absolutely normal. No conclusions, however, can be drawn from one solitary instance; the observation is merely of speculative interest.

SULPHATES.—The percentage of sulphates was 1 to 1.2 per cent., slightly higher than in adults—.8 being their average. Purdy states that the sulphates run parallel with the urea.

ALBUMIN AND SUGAR.—Neither albumin nor sugar were detected in any specimen. So much had been said about a physiological albuminuria that I had expected to find albumin in one or more specimens. It must be remembered, however, that my cases were examined but two or three times, and some only once, and that therefore a transient temporary albuminuria might have come and gone between examinations. No deductions can be made on this point.

Sediment.—Examinations of the sediment showed nothing of especial interest in any case.

Reaction.—The reaction was acid in all cases, though of course varying in intensity in different specimens.

Color.—The color in most cases was pale, in the rest normal.

Looked at as a whole the records show three factors of chief importance. The small amount of urine, the high percentage of urea, and, a natural result of these two, a high specific gravity. In other words, these children are passing a comparatively concentrated urine. They are all healthy, robust children, eating, sleeping and digesting well, and of average weight. Do these records of their urine represent the urine of average American children, or of average children living under American customs and régime? Does the difference in nationality account for the difference in results as obtained by investigators cited, and by myself? Their cases were all German children, mine American, though mostly of foreign parentage and living in an asylum. Or, is it merely a coincidence, happening among this small number of children, that they all pass a urine, small in amount, concentrated in character? The number of cases is too small to draw conclusions as to the effect of race, national habits and customs of life.

It is interesting to note, however, in this connection the amount of urine in adults, as given by observers in different countries. Simon gives the following:

Salkowsky (Germany),	1500 to 1700 c.c.
Jaksch (Austria),	1500 to 2000 c.c.
Landois & Sterling (England),	1000 to 1500 c.c.
Gautier (France),	1250 to 1300 c.c.
Simon (America),	1000 to 1300 c.c.
(Females),	900 to 1000 c.c.

It would seem from these tables that American adults and also children, pass smaller amounts of urine than the people of other countries.

Are we not justified in regarding these facts as unfortunate and the development of renal trouble later in life, as a not at all improbable result of the constant irritation to the kidney? Is it not advisable, especially in children with a renal, rheumatic or lithæmic heredity to inquire carefully into the amount and quality of their food and drink, and to take measures to insure the elimination of a more dilute and less irritating urine? This would seem to be all the more important when we consider the large number of conditions which act, either directly and immediately, or indirectly and remotely, as causes of nephritis, a disease occurring in childhood more frequently than is generally thought. We must seek to correct or remove any condition of the system which might act, however slightly, as an irritant of the kidney.

As stated in the beginning of the paper, the subject of renal excretion is an important one, and the questions asked are put with the hope of a full discussion and to gain further information.

I wish to express my indebtedness to Dr. Charles W. Purdy for valuable suggestions in the preparation of this paper, and also to Dr. Wesley Thomas for the free use of the wards at the Chicago Half-Orphan Asylum.

583 EAST DIVISION STREET.

LITERATURE.

BERTI: Rev. Mens. des Malad. de l'Enfance (April, 1892).

CAMERER: Zeitschrift f. Biol. Bd. XIV.

DEUTZ: Inaug. Diss. Gottingen.

DOHRU: Monatschrift f. Geburtsk. Bd. XXIX.

HELME: Brit. Med. Journal. I., 1261.

HERZ: Wiener Med. Woch. Bd. XLIV.

HOLT: Diseases of Infancy and Childhood, 1897.

J. LANGE: Archiv. f. Kinderhlk. Bd. IX.

H. BENSING: Zeitschrift f. Geburts. und Gynakol. Bd. XXXIII.-IV.

ROTCH: Pediatrics, 1896.

SCHABANEWA: Archiv. f. Kinderhlk. I., 1880.

SCHIFF: Jahrb. f. Kinderhlk. Bd. XXXV.

VIERORDT: Physiologie des Kinderalters, 1877.

DISCUSSION.

DR. CHRISTOPHER.—I am much interested in the last column in the table presented by Dr. Churchill. He gives there the urea per kilogram. I am in the habit of estimating that the amount per kilogram is 0.5 gramme, or that it is $\frac{1}{2000}$th part of the weight of the individual. It is remarkable how near his figures come to that ratio. If one to two thousand is the correct ratio, then the number in the last column should be .500 to bear it out, and it runs almost universally .600, except at seven years of age, where it is down to .296, about one-half the quantity at every other age. I beg to call especial attention to that apparently abnormal figure. It is an entirely new one to me, and I think it has a bearing on the paper I shall present to-morrow.

DR. TYSON (an invited guest).—A good deal of the matter of the paper is quite new to me, as far as the discussion of details of the different proportions of the constituents of the urine is concerned. I have myself made no practical study of this subject, but there are two points that have occurred to me, in connection with which I have had some experience. The first is the question of albuminuria of children. In my experience the albuminuria of children is not found at as early an age as any of the ages here recorded. I think commonly twelve to fourteen years is about the age at which this albuminuria presents itself, and it is apt to last until twenty-one or twenty-two years of age, when the condition disappears. The second point, in regard to which I have had some little practical experience, is the quantity in adults. My experience with the quantity of urine in adults corresponds with that of other American observers. I think it is more often below 1500 c.c. than above it; in fact, 1200 to 1500 c.c. is what I would report from the observations I have made.

DR. FRUITNIGHT.—I would like to know whether any consideration of the compensating action of the skin was taken in regard to the season of the year.

DR. CHURCHILL.—The observations were begun in September and carried on until the last of March.

DR. ROTCH.—This is a very valuable work, and a work which is needed. When I was preparing the tables to which reference has been made, I had great difficulty in getting any information I could rely upon. I have no doubt that this work of Dr. Churchill is a valuable supplement.

DR. GRIFFITH.—I would like to know if there was any limitation in the amount of water these children could have. For instance, it is possible that in a public institution water might not be as freely supplied as in a private family where a child can have water whenever it desires.

DR. CHURCHILL.—I inquired that of the attendants and they said the children were allowed water whenever they wished it, and as far as they observed they drank as much as other children.

DR. HOLT.—How much milk was allowed the children?

DR. CHURCHILL.—As much as they liked to drink. In answer to the question in reference to the albumin where I found casts, there was no albumin in any of the cases except in the child that developed an attack of acute nephritis a month after my first examination. When I came to collect the urine a second time he was in the midst of an attack of nephritis which had been diagnosticated as an attack of "cold" by the homeopathic physician. The specific gravity was always taken from the twenty-four hour urine.

Treatment of Infantile Paralyses.—Eulenburg (*Deut. Med. Woch.* April 7, 1898) discusses the value of tendon transplantation in these paralyses, and relates a case of spastic paralysis in which it was successfully performed. In anterior poliomyelitis there is frequently a rapid atrophy of some muscles, followed by contracture in their antagonists, which leads to various deformities of the foot. Electricity and gymnastic treatment are almost useless to overcome these deformities, and hence a mechanical orthopædic treatment has to be adopted. The object of the new procedure of tendon or muscle transplantation is to render the paralyzed muscles capable of voluntary movement. The tendon of the muscle to be transplanted is split lengthwise, and is united with the tendon of the paralyzed muscle. In paralytic pesequino-varus where the extensor communis digitorum and peronei are affected, transplantation is made from the gastrocnemius, tibialis anticus, and occasionally from the extensor longus pollicis. A portion of the gastrocnemius has thus been united with the peroneus longus and a portion of the tibialis anticus with the extensor communis digitorum. These procedures have been carried out with very good results by several surgeons in the case of the lower extremity, but as yet with very little effect in the case of the arm. In cerebral spastic paralysis, definite muscles or groups of muscles with the same function are mostly affected by spasm, whereas the antagonists are by no means devoid of function. Thus Eulenburg adopted tendon transplantation in a case of spastic paraplegia in a child aged three. A portion of the tendo Achillis with the attached soleus was implanted by Sonnenburg into the united tendons of the peronei, and the foot was put up in plaster. After a fortnight faradic stimulation of the tibial nerve produced pronation with a raising of the outer side of the foot. All spasm disappeared, and the child could place its feet on the ground extremely well.—*British Medical Journal.*

SHORT REPORTS ON UNUSUAL CASES.*

BY T. M. ROTCH, M.D.,

Professor of the Diseases of Children, Harvard University, Boston.

CEREBRO-SPINAL MENINGITIS.

On January 17th, during my service at the Children's Hospital, a little girl three and a half years old entered my wards. The history of her sickness previous to entering the Hospital was such that the diagnosis of no especial disease could be made. She had had a little vomiting and headache, but nothing definite could be ascertained. The physical examination, with the exception of showing that there was rhachitis, presented nothing abnormal. The temperature ranged from 98.5° to 105° F., the pulse from 98 to 140, and the respirations were almost invariably 30.

An examination of the blood by Dr. Wentworth about six weeks after onset, showed no marked changes in the size or form of the red corpuscles, and was as follows:

Red corpuscles,	2,800,000
White "	11,200
Hæmoglobin,	40 per cent.

The differential count showed

Neutrophiles,	72 per cent.
Small mononuclears,	10 " "
Large "	17.⅓ " "
Eosinophiles,	0.⅔ " "

No plasmodia were detected.

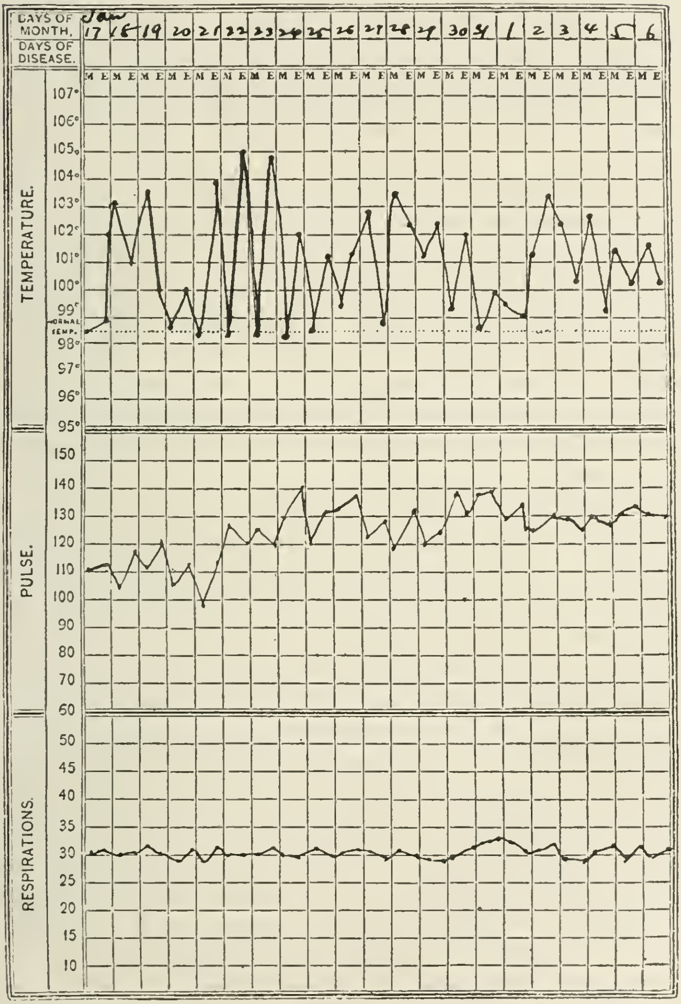
A lumbar puncture was then made by Dr. Wentworth, the diplococcus intracellularis was found, and the diagnosis of chronic cerebro-spinal meningitis made.

The subsequent course of the case pointed decidedly towards this disease, which lasted from February 24th to April 22d. I report it to show the value of lumbar puncture in cases where the diagnosis is obscure. At the time the lumbar puncture was made the child seemed to be failing fast, but soon began to improve after a number of remissions of the symptoms which are so characteristic of the chronic form of cerebro-spinal meningitis in children.

---

* Read before the American Pediatric Society, Cincinnati, June 2, 1898.

The accompanying chart shows the temperature at a time when nothing especially characteristic of the disease could be detected from it.



Published by CODMAN & SHURTLEFF, Boston.

CHART SHOWING RANGE OF TEMPERATURE, PULSE, AND RESPIRATION IN A CASE OF CEREBRO-SPINAL MENINGITIS BEFORE CHARACTERISTIC SYMPTOMS DEVELOPED.

INTUSSUSCEPTION.

On the 9th of November, 1897, I saw, in consultation with Dr. Thompson, of Boston, a girl five years old with a history of previous good health, except that six months before she had had attacks of paroxysmal abdominal pain and vomiting, from which she completely recovered. On November 6th she complained of abdominal pain, which increased during the night, and early in the morning she began to vomit. I saw her twenty-four hours after she had been taken sick. She had not passed any fæcal matter from the bowels for twenty-four hours, but only bright red blood mixed with mucus. The pulse varied from 90 to 99 and was weak. The temperature was 100° F.

An examination of the abdomen showed a mass in the right hypochondrium which was dull on percussion. A rectal examination failed to reach the tumor. The child's face was pinched and she was evidently growing worse rapidly. While waiting for the preparations for laparotomy to be made I tried hydrostatic pressure, by means of a fountain syringe with the usual nozzle, at a height of about four feet, and almost instantly the tumor disappeared, the child's face lost its anxious expression, and from that time there were no more symptoms of intussusception.

I merely mention this case as showing how under very rare circumstances a pronounced intussusception can be reduced with very slight pressure, provided, of course, as was probable in this case, the axis of the invaginated portion was in a direct line and no adhesions had taken place.

The next case was that of a boy two years old who entered my wards at the Children's Hospital with the following history: He had previously had no diseases and had no history of not being well and strong up to the time of entrance. Twelve days before entering the hospital he fell out of bed and on the following day vomited several times. Since that time he vomited nearly all the food that was given to him and had profuse diarrhœa consisting of light yellow, watery movements. On physical examination his eyes were found to be sunken, and he seemed very sick, but his pulse was full and regular and nothing abnormal was detected in the heart, lungs, or abdomen. During the following week he improved rapidly, sat up, laughed, played and was apparently perfectly well, except that after each movement of the bowels he passed a small quantity of bloody mucus. The movements, however, were well formed and yellowish brown. A lumbar puncture made four days after entrance, on account of an irregularity of the pupils which was detected at the time, showed a normal fluid.

Eleven days after entrance he began to be restless, vomited in the evening and cried a great deal during the night. On the following day he vomited all the food that was given to him and had no movement of the bowels excepting a little blood and mucus. At 8 o'clock in the evening a tumor was detected in the left iliac region, and at 9:30 it had increased in size, extending down the whole side of the abdomen to the anterior superior spine of the ilium. The child was looking very badly, had a rapid pulse, sighing respirations, and waxy color. The abdomen was greatly distended, and the coils of intestine showed plainly through the abdominal walls. There was continued tenesmus and passage of blood and mucus. At 10:30 P.M. hydrostatic pressure at a height of five feet, by means of a fountain syringe, was tried. The tumor immediately disappeared and the child seemed in good condition. At 10 o'clock on the following day no tumor could be found, but two and a half hours later a mass could easily be felt in the same location as before, but not so large. Hydrostatic pressure again caused the disappearance of the tumor, but the same conditions returned at 3 P.M., and the child was looking so badly that he was transferred at once to the surgical side of the hospital, where he was operated on two hours later by Dr. Lovett. An intussusception of the ileum into the cæcum was found which had apparently existed for a long time, as the layers of intestine were firmly adherent. There was also a smaller intussusception apparently recent which was easily reduced. The larger one resisted all attempts at reduction and was accordingly resected and an artificial anus formed. The child died four hours later.

I report this case as illustrating the possibility of an old and a fresh intussusception occurring in combination, and in order that we should avoid giving a too favorable prognosis when a recent intussusception has been reduced.

197 COMMONWEALTH AVENUE.

DISCUSSION.

DR. HUBER.—The two cases of intussusception reported have interested me considerably. Since October I have seen six cases; two, with tumors, were reduced with the fountain syringe. Two others have passed from under my observation; two seen within the past few months have interested me particularly. One was seventeen weeks old, and the child was seen about twelve hours after the initial symptoms. A careful examination failed to show any tumor. A high rectal enema under moderate pressure allowed a good deal of water to enter, showing that the seat of the trouble was high up. The water escaped, but the symptoms did not improve. The child was sent to the hospital, a laparotomy done, and an intussusception three inches in length found at the ileo-cæcal valve. The little one recovered from the immediate effects of the operation, but died six weeks later of some secondary cause. The second case, a child of five months, was seen about nineteen hours after the initial symptoms. A particular point I wish to refer to is the slight amount of blood that is sufficient to warrant the diagnosis of this condition. A careful examination under chloroform failed to show any tumor, yet on laparotomy we found that the intussusception started at the ileo-cæcal valve and extended along the ascending and transverse colon into the descending colon. Yet careful palpation failed to reveal any tumor. There was no question as to the diagnosis in these cases, because at laparotomy the condition was established. The child was rachitic, had tetany to a marked degree, ran along about five weeks, no attempt on part of wound at union, and the patient simply died of exhaustion.

DR. FRUITNIGHT.—Dr. Rotch's remarks are very appropriate, for we are prone to neglect measures other than purely operative. Last fall I saw a child about three years old in whom a diagnosis of intussusception had been made by several able physicians. An operation was made, and when the abdomen was opened it was found that the indications of intussusception were there, but it had become spontaneously reduced. The hydrostatic pressure in Dr. Rotch's case fortunately saved the child an operation. In another case, in which there was tenesmus with bloody discharge, the child was also relieved by this method of treatment. It will be remembered that very often on the *post-mortem* table intussusception is frequently discovered in the bodies of young children, which were unaccompanied by any clinical symptoms. At times more than one such lesion has been found in the same subject. It is plausible to assume that such cases of intussusception as these often reduce themselves spontaneously, the lesion having gone undiscovered because no symptoms had been developed.

DR. HUBER.—I would like the doctor to understand that in the cases reported the high rectal enema had been tried, and as the symptoms did not disappear operation was resorted to.

DR. WINTERS.—I wish to recall a case which I saw in consultation with Dr. Eastman. We made a diagnosis of intussusception and sent out the father to telephone for a surgeon to operate. During his absence distention was tried with complete relief and no operation was necessary. In another case in which we tried hydrostatic pressure relief was immediately obtained, That was in the morning about ten o'clock. That evening symptoms of the return of the intussusception occurred; the child went into a collapse and died. So it seems there is some doubt as to the permanency of the result. In that instance the second intussusception recurred about eleven hours after the relief of the first, and the child died in two or three hours.

DR. NORTHRUP.—I wish to endorse what Dr. Huber has said in regard to the diagnosis. We all meet individual cases and we all find some that can be reduced by injections, some which cannot, and some which are harmed by them. I recently met an individual who was elated over his success in a case where he took the fountain syringe up a flight of stairs, the patient remaining in the lower hall, but he did not succeed; so he carried it up another flight and reduced the intussusception. I would like to hear whether we would endorse any certain height. I have met a case which would not go back with gentle injection, neither when the abdomen was open was it safe to use sufficient traction to reduce it.

DR. CONNER (By invitation).—Cases of intussusception are met not infrequently, as has been said. Some are reducible without difficulty, some reducible with difficulty and some are absolutely irreducible. It has been my fortune to see a few of these cases, not very many, and I can heartily endorse what has been said about the propriety of what has been adopted. Special care should be observed in the use of these injections or far more harm may be done than good. We are frequently called upon to operate after harm has been done in this way, and the individual is far worse off than if nothing had been done.

DR. JACOBI.—Only as to the height of the water. There was a medical gentleman in New York who insisted upon having the water run through a tube exactly 14 feet long, no less and no more. Now the use of a tube 14 feet long requires just exactly what Dr. Northrup says, taking the syringe upstairs. The gentleman mistook a baby's bowels for iron pipes, and tried to exactly calculate the hydrostatic pressure so that 14 feet was just the proper thing. That is so unphysiological and so opposed to everything we know of the infant gut, its tissues, its expansibility, its power of resistance, etc., that it is hardly worth while to consider that barbarous procedure. If an injection is to be made it should be made from a height of a foot or a foot and a half, and no more. That, with a little massage, while the hips are raised and the baby on his face, will accomplish everything that is to be accomplished. A thing not to be forgotten is that the intestine was not previously in a normal condition·

Sometimes there is a local peritonitis, and I have seen a few instances where perforation of the gut took place from overloading, or from trying mechanical (sound) reduction.

DR. CAILLÉ.—In those cases with tumors presenting, I think the best rule is the one we have in Dr. Holt's book. One prolonged attempt of reduction under anæsthesia should be made by inflation, and then an operation should be resorted to if we are unsuccessful.

DR. ROTCH.—I did not advocate this method of reducing intussusception, in fact I expected exception to be taken to it. We should adopt this method of reducing an intussusception with the greatest care. The surgical opinion, I think, is against using it at all. In some cases we undoubtedly cause death by rupture. However, the opinions of those who are not surgical are not quite so strong as of those who are purely surgical. If the intussusception cannot be reduced by slight pressure, increased pressure should not be used, because then adhesions have occurred. I happened to have a case where the axes of the two pieces of intestine were the same, otherwise they would have been pressed still more tightly together. Therefore I should say that a very slight pressure for a very short time only should be used. The infant may appear perfectly well; again, no tumor may be felt, and yet the other symptoms be so significant that laparotomy should be done at once.

Results of Forcible Straightening of the Spine. Bilhaut (*Annales de Chir. et d'Orthopéd.*, Jan., 1898), gives details of cases showing the increase in height following forcible straightening of the spine in Pott's disease. He finds that in all patients attacked by this malady, adults, or children, some changes are produced in the height. In adults it diminishes before old age, even without the occurrence of the hump. In children the growth of the spine is arrested, and the height increases only by increase in the lower limbs and head. In the early stages of the disease the height diminishes. The growth of the posterior arch and the cuneiform flattening of the bodies only aggravate the gibbosity without elongating the vertical dimensions of the thorax. The child regains his powers of growth when the curve is reduced, and along with this comes a correction of the form of the thorax, and an improvement in the vital forces from the better condition under which the thoracic and abdominal viscera act.—*British Medical Journal.*

CONGENITAL MALFORMATION OF THE BILE DUCT.*

BY CHARLES P. PUTNAM, M.D.,
Boston.

The case was referred to me by Dr. W. W. Miner of Ware, and was also examined by Dr. J. W. Elliot, who operated, and Dr. T. M. Rotch.

The patient was a girl, four months old, of healthy parentage, and free from evil pre-natal influences as far as is known, (except that the mother had had an attack of something like dysentery six months before the child was born).

The birth weight was six pounds eight ounces, and up to the age of two months and a half the child gained weight every week, and at that age weighed seven pounds, fifteen ounces. Since then it had gained irregularly, but at four months weighed nine pounds thirteen ounces.

It had been on the breast four weeks, and after that had had various mixtures.

The skin became yellow two or three days after birth, and had been yellow ever since, in varying degrees.

The meconium had been black, but scanty, only two or three discharges. All subsequent feces had been quite or nearly white, very little change of color having been brought about by changes of food, and none by calomel or podophyllin.

Vomiting and diarrhœa had occurred occasionally, but had never been excessive, nor were there other marked signs of indigestion.

Nevertheless the child had cried a great deal as if in distress, especially at night, and had been quieted only with difficulty.

As for the effect of foods, apparently condensed milk much diluted had suited the digestion best, and conversely all the preparations containing more fat had disturbed the digestive organs more.

The liver was large and hard, and was easily felt about an inch below the edge of the ribs. Otherwise the appearance was that of a small but fairly well-looking child, somewhat yellow, but nevertheless somewhat pink on various parts of the body. It had not the general appearance of a child affected by a grave organic disease.

---

*Read by title before the American Pediatric Society, Cincinnati, June 2, 1898.

The white feces were carefully subjected to two delicate and intricate tests for bile elements by Dr. C. R. L. Putnam with negative results.

The published cases of this affection show that it has been fatal without exception, not plainly, because the bile is not poured into the intestine, but because the bile retention gives rise to cirrhosis. Bile can be supplied to the intestine artificially, but there is no way to prevent the cirrhosis.

The operation was decided on therefore for the following reasons:

(1) Because the child was sure to die without it.

(2) Because it might prove possible to carry the stream of bile into the intestine.

(3) Because, failing of this, it might be possible to make a biliary fistula and relieve the liver, supply bile artificially and keep the child alive, until it should be large enough for a more extensive operation.

During the few days while the operation was under consideration the child was evidently failing, in spite of a careful supervision of its food.

The child was placed in the inversed Trendelenburg position. An incision having been made in the median line, and the air having been admitted, the intestines fell away and it was easy to see the lower surface of the liver. The gall bladder was in its proper place but was of a pinkish color, and evidently contained no bile. On pushing it to the (child's) left, a duct filled with bile came into view. This was emptied temporarily by s troking it to the right or toward the liver, but became distended on being stroked in the opposite direction, showing that it was obstructed on that side. The probe also passed to the right but not to the left. As no way presented itself of bringing about a normal condition, a small glass tube was introduced to drain this duct and the wound was closed.

A considerable quantity of bile ran out through the tube, and the child passed the quietest night of its life. Next day it began to fail, however. A slightly elevated was followed by a normal and subnormal temperature, and it died on the third day.

THE AUTOPSY showed normal conditions except for the organs described as follows by Dr. W. F. Whitney:

"The liver and a portion of the duodenum and stomach were examined after hardening in alcohol.

"The relations at first sight appeared normal. The liver was, however, coarsely granular on the surface with alternating slightly opaque, prominent areas separated by more translucent fibrous looking ones of a dark green tinge. The organ measured 11.5 by 6 by 3 cms., and the right and left lobe were distinctly marked, while the lobe of Spigelius and the quadrate lobe were hardly indicated. On dissection at the portal fissure was a little dark green connective tissue, but not the slightest trace of a duct, although the vessels were normal in size and relation. The gall bladder lay in its fissure and a duct could be distinctly traced from it to the papilla in the duodenum where it opened.

"A section through the liver showed the bile ducts distended and filled with dark green inspissated bile. These could be distinctly followed to the green stained connective tissue first mentioned. The section surface showed everywhere irregular fibrous strings separating lobules of liver substance.

"Microscopic examination showed the fibrous tissue strings to contain vessels with thick walls and very numerous bile ducts of small size. The connective tissue itself contained relatively few nuclei and the line between it and the liver substance was quite sharp and the liver cells well preserved close up to it. In places it could be seen working its way in between the cells and evidently causing their atrophy. Small bile radicles filled with bile were occasionally to be met with among the cells.

"The condition is one of a failure of development (agenesis) of the hepatic duct, with bile retention, connective tissue growth with proliferation of the bile ducts and atrophy of the liver cells."

Of course it was recognized that this operation offered but a very minute chance of success. For one thing it came later than it ought to have come, when the liver was already cirrhosed. We believe, however, that the right principle for the first time guided the treatment, in that cirrhosis, and not lack of bile, is the essential danger of the affection, and that on some other occasion an operation may be successful which diverts the bile out of the liver, even if it is impossible to turn it into the intestine.

63 MARLBOROUGH STREET.

SEVEN CASES OF LARYNGEAL DIPHTHERIA TREATED WITH ANTITOXIN. ONE DEATH.*

BY CHARLES GILMORE KERLEY, M.D.,

Lecturer on Diseases of Children, New York Polyclinic; Assistant Attending Physician, Babies' Hospital: Attending Physician Out-patient Department, Babies' Hospital.

The following cases of laryngeal diphtheria comprise the entire number treated by the writer with antitoxin.

The first patient was a boy, three and one-half years old. He was fairly vigorous; had been ill three days when first seen. I was called on account of croup, which failed to respond to home remedies. I found the patient sitting up in bed playing. There was slight dyspnœa, almost complete loss of voice, a hard, brassy cough. There was moderate glandular swelling at the angle of the jaw, no visible membranes, fauces congested.

TREATMENT.—Laxatives, liquid nourishment, calomel fumigations, ten grains every three hours. Culture taken.

The following day, the second under observation, I was hurriedly called and found the patient suffering from intense dyspnœa. Both inspiration and expiration were markedly impeded. Intubation was hastily performed with complete relief of the dyspnœa. One thousand units of antitoxin were given at once. Further treatment consisted of liquid nourishment, and strychnia sulphate, $\frac{1}{150}$ grains, six hours apart. Board of Health reported diphtheritic bacilli.

Third day under observation, there was no marked change in the patient. He breathed easily with tube. Moderate prostration. Temperature ranged between 100 and 101°. One thousand units of antitoxin was repeated.

Fourth day, patient much brighter, temperature normal, cough troublesome.

Fifth day, patient continues to improve, sat up in bed and played with his toys.

Sixth day, tube removed, but had to be replaced in thirty minutes on account of the return of dyspnœa. No other unfavorable symptoms developed.

Eighth day, tube again removed and not replaced. Patient made a good recovery. Developed a paralysis of the left leg which lasted about three weeks. Throat free from bacilli in three weeks. Urine negative throughout illness.

---

*Read before the American Pediatric Society, Cincinnati, June 2, 1898.

The second patient was a girl ten years old; previous condition excellent. First seen on the third day of the illness. Temperature 103°, pulse 150, voice lost, hard, teasing cough, moderate dyspnœa. Throat filled with yellowish discharge. Both posterior pillars covered with grayish-white membrane. Posterior portion of uvula covered. Several small areas on pharyngeal wall, small thin layers on both tonsils. The examination of larynx unsatisfactory, but sufficient to show membrane on under surface of epiglottis. There was considerable swelling of the cervical glands. The examination of the urine showed a trace of albumin.

TREATMENT.—Two thousand units of antitoxin, $\frac{1}{0}$ grains of strychnia sulphate every six hours, steam spray, Dover's powder for cough and restlessness.

Second day under observation, temperature 101½° to 102½°, pulse 120. Cough still troublesome, breathing easier, less dyspnœa. In general appearance the child was greatly improved and claimed that she felt much better. Throat examination showed one tonsil clear, membrane generally appeared less adherent. At four o'clock in the afternoon, a piece of membrane ¼ x 1 inch was coughed up from the larynx. Examination of the urine still showed a trace of albumin. Treatment—Strychnia, nourishment and steam inhalations as before. Irrigation of the nose and throat with a normal salt solution was carried out every three hours.

Third day, temperature 100° to 101°; child showed marked general improvement, and asked for food. Membrane still on pillars, but the throat had a much clearer appearance. At seven o'clock in the evening another large piece of membrane was coughed up from the larynx.

Fourth day, throat clear of membrane; temperature 99° to 100°; pulse 110; voice returned; coughed much less. Treatment as before.

Fifth day, voice improved, coughed very little; urine negative. Treatment unchanged.

Sixth day, voice normal.

On the eighth day under observation, the eleventh day of illness, the patient sat up in a chair apparently as well as ever. The throat was free from bacilli the thirteenth day of the illness. No sequela.

The third patient was a boy two years old, a strong and vigorous child. First seen on third day of illness. At first visit he was suffering from intense dyspnœa, both inspiration and expiration being impeded. Both tonsils and fauces covered with a dirty gray membrane. Sanious discharge from nose. Glands at angle of jaw moderately enlarged. Temperature 103°, pulse 150, fairly good. Child was intubated at once, with complete relief to the dyspnœa. Further treatment, stream spray, strychnia $\frac{1}{200}$ grains every six hours. Liquid nourishment. Antitoxin 2000 units. The following day, second under observation, child some brighter, membrane presented a broken down granular appearance; temperature 102°, pulse 150. Other treatment unchanged.

Third day, temperature 100°, pulse 120, membrane clearing, child apparently much better. Treatment unchanged.

Fourth day, throat clear, child playing with toys. The tube removed on seventh day. No return of dyspnœa, child made good recovery. Urine negative throughout. No sequela.

The fourth patient was a girl three years four months old. Previous condition strong, well-nourished. Child had been ailing slightly with croupy cough and hoarseness for several days, when suddenly at 8 A.M. she was taken with urgent dyspnœa. There were supra and infra sternal recessions. Both inspiration and expiration were impeded. Voice lost. Temperature 101°, pulse 130. Fauces generally congested with small spot of membrane on posterior pharyngeal wall the size of a flaxseed. Moderate glandular swellings at angle of jaw.

TREATMENT.—Liquid nourishment; emetic; laxative, calomel fumigations, ten grains every three hours. Intubation seriously considered. Culture taken. In the evening temperature 102°, pulse 160, very soft and irregular. Child showed marked prostration, in spite of the fact that the breathing was easier. It was thought best not to wait for the report of the culture, but give antitoxin at once; 1500 units were accordingly given. The further treatment consisted in cardiac stimulation, $\frac{1}{150}$ grains strychnia every four hours, tinct. strophanthus gtt i every three hours, calomel fumigations every three hours. Liquid nourishment. The prostration was so great that the writer spent a portion of the night at the bedside of the patient. On the following morning, second day under observation, the child was stronger, less dyspnœa, now chiefly inspiratory, temperature

101°, pulse 160, regular but feeble. Glandular swellings unchanged, spot of membrane on posterior pharyngeal wall disappeared. Bowels quite loose and green. Calomel fumigations discontinued. Treatment liquid nourishment, absolute rest in horizontal position. Strophanthus gtt ii every six hours. Strychnia sulphate $\frac{1}{150}$ grains every six hours. Cough still croupy, voice improving.

Third day under observation, child showed marked improvement, voice nearly normal, slight inspiratory dyspnœa; temperature normal.

Fourth day, patient considerably exhausted, otherwise well. Glandular swelling almost disappeared. No sequela. Culture showed diphtheria bacilli. Throat clear three weeks from onset. Urine negative throughout. No sequela.

The fifth patient was a boy three years old, strong and well-nourished, seen in consultation with Dr. W. B. Hoag. The child had a croupy cough and hoarseness for seven days. He was not sufficiently ill in the judgment of the parents to require the services of a physician. On the evening of the seventh day, he was taken suddenly with intense dyspnœa. Both inspiration and expiration were impeded. There was complete loss of voice. The writer was hurriedly summoned by the attending physician with a view to intubation. Upon my arrival the breathing was easier, but there was still considerable obstruction to both inspiration and expiration, but not enough to warrant intubation. There was but slight prostration, temperature 100° pulse 120, good. Very slight swellings at angle of jaw. The fauces were intensely congested. There was a small, thin membrane on the post-pharyngeal wall the size of a split plea. Culture taken.

TREATMENT.—Two thousand units of antitoxin were administered. Further treatment consisted of calomel fumigations, ten grains every three hours. Liquid nourishment.

On the following morning, the second day under observation, the dyspnœa was less marked, but still present. The patient seemed appreciably improved. The treatment with calomel fumigations was continued and 1500 units of antitoxin were given. Report of culture showed true diphtheria. Urine negative. Throat clear.

Third day under observation, temperature normal, patient quite bright, no prostration. As there was still a slight degree of dyspnœa upon inspiration, 500 units of antitoxin were given. Throat clear, voice much improved.

Further history uneventful. Child well seven days after first injection. Throat free from bacilli. No complications or sequela.

The sixth patient was a boy two years old, well-nourished; seen in consultation with Dr. Geo. W. Jarman. First seen by the attending physician in the evening the first day of the disease. He had then a slight fever and a croupy cough. The next morning I saw the patient for the first time. The temperature was 101° to 102°, pulse 140, fairly strong, respiration 40. The voice was hoarse, the cough croupy; considerable dyspnœa; fauces congested; no membrane visible; chest clear.

TREATMENT.—Liquid nourishment; calomel fumigations, ten grains every three hours; strychnia $\frac{1}{150}$ grain every five hours. During the day the prostration increased. Respiration in the evening 60 to 70, pulse 150, temperature 102° to 103°. Stridor less, but voice hoarse and croupy. Antitoxin, 1500 units, given. Other treatment unchanged. Chest clear. At four o'clock the next morning, second day of illness, the dyspnœa became urgent. Intubation was performed. For an instant the rattling sound we like to hear, and then silence, and convulsive attempts at breathing on the part of the child, who became deeply cyanosed. The tube was hastily removed and found to be plugged with a tough piece of membrane the size of a dime. This was removed, and the tube re-inserted, with relief to the child so far as the obstruction was concerned. The respiration remained as rapid as before. In spite of the relief to the breathing, free stimulation and nourishment, the prostration increased. Rapid respiration was a prominent feature of the illness. During the day it ranged from 70 to 80 per minute. The chest had been repeatedly examined and showed no evidence of consolidation until eleven o'clock on the following morning. At this time we discovered a consolidation in the upper portion of the left lower lobe. From this time there was a rapid failure, the child dying from exhaustion at eight o'clock in the evening, forty-eight hours after the first sign of illness.

The writer feels that the lack of results in this case in no way militates against the value of antitoxin in diphtheria. The pneumonia and diphtheria evidently developed at about the same time, and was more than the patient could bear.

The seventh patient was a girl five years of age. Seen in consultation with Dr. Peter Murray. The writer was called by the attending physician to perform intubation second day of illness. Child was suffering from intense dyspnœa, both inspiration and expiration being impeded. There was marked prostration, pulse 150, irregular and soft. There was no visible membrane. Glands at the angle of the jaw slightly enlarged.

Treatment.—A tube was introduced with complete relief to the dyspnœa and 1500 units of antitoxin were given. Further treatment consisted of cardiac stimulation, with strychnine and whiskey. The tube was removed after an interval of six days without return of the dyspnœa. During this time the treatment consisted of liquid nourishment, strychnine and whiskey, with an occasional laxative. Culture taken the first day of the disease showed diphtheria bacilli. Two days later, the tenth day of the illness, the symptoms of slight fever and moderate dyspnœa with prostration reappeared; 1500 units were given. Intubation was not necessary. The active symptoms subsided, and the patient made an uninterrupted recovery, the throat being free from bacilli eighteen days after the onset. The temperature in this case was never above 102° F. No sequela.

New York Board of Health antitoxin was used in every case.

In conclusion, seven cases in all were treated, four boys and three girls. Four were intubated, with one death. Two others would have been intubated had I not felt it safe to use palative means, and wait for the effects of the antitoxin.

Initial dose of antitoxin was given: First day of disease, in one; second day of disease, in one; third day of disease, in two; fifth day of disease, in one; seventh day of disease, in one; after several days, in one.

The antitoxin was given the first day under observation in five. The second day under observation in two.

Two received single injection of 2000 units; two received single injections of 1500 units; one received two injections of 1000 units each; one received two injections of 1500 units each; one received three injections of 2000, 1000, 500, respectively.

Recovery Cases.—Signal improvement followed upon the use of antitoxin after an interval of twelve hours in four. After an interval of eight hours in another.

The remaining case showed no improvement in twenty-four hours after the first 1000 units. This was repeated. Sixteen hours after the second injection, decided improvement was noticed.

113 West Eighty-third Street.

DISCUSSION.

Dr. Caillé.—Dr. Kerley's results are very good. The question that interests me is whether we need calomel fumigations when we use antitoxin. At the meeting two years ago I reported thirteen consecutive recoveries with antitoxin alone; a colleague in Brooklyn reported sixteen or eighteen cases, and a practitioner from Newark reported twenty-three consecutive recoveries with antitoxin alone. If the calomel fumigations plus antitoxin are better than the antitoxin alone, we ought to adopt them. If they are not any better, I would say we ought to drop them.

Dr. Fruitnight.—In answer to Dr. Caillé's remarks, I would say that I was an ardent advocate of calomel fumigation in the treatment of laryngeal stenosis before the introduction of antitoxin, but since then I have not used fumigation, but have relied altogether upon antitoxin. It is just in these cases I think that antitoxin shows its brilliant results. For in these very cases in which laryngeal stenosis is threatened, it has been my experience that the use of the diphtheric antitoxin has prevented the full development of diphtheritic croup, frequently rendering intubation unnecessary, whereas formerly nearly all pronounced cases of this description would be obliged to be either tracheotomized or intubated.

Umbilical Hernia Containing the Heart in the New-born Infant.—Dr. Arndt (*Centralblatt für Gynäkologie*, 1896. No. 24) reports the case of a child apparently in good health when born. At the umbilicus there was a tumor of the size of an apple, contiguous with the cord. Through the walls of the tumor could be seen coils of the intestines, the liver and the pulsating heart. Celiotomy was performed seven hours after birth. In the hernial sac was found the heart, the deformed liver, the stomach, the ileum, and part of the colon. The heart, which was not surrounded by the pericardium, could not be replaced in the thorax, making the prognosis absolutely fatal.—*Modern Medicine.*

ALBUMINURIA DURING PREGNANCY, WITHOUT CONVULSIONS OF THE MOTHER, BUT WITH ECLAMPSIA OF THE NEW-BORN INFANT.

BY HENRY KREUTZMANN, M.D.,
San Francisco, Cal.

General convulsions, eclampsia, of the new-born appear to be of rare occurrence. During an attendance of two semester at each the maternity clinics of Munich (Prof. Hecker) and of Erlangen (Prof. Zweifel), I have never seen such a case. During my connection with the obstetrical clinic and polyclinic of the University of Erlangen as assistant physician to the chair of obstetrics and gynecology extending over almost two years not a single case was observed. In my own practice since, I never met a case, until two years ago. This observation is the object of the present publication.

In the text-books at my disposal, notes on general convulsions of the new-born are equally scant: Vogel (1), Baginsky (2), Jacobi (3), Runge (4), make no special mention of their occurrence. Bednar (5), reports four cases of "Essential convulsions" in babies from two to forty-seven days, three boys and one girl; nothing further is said about their cause or course. Holt (6), mentions general convulsions as a nervous symptom of acute pyogenic diseases of the new-born (l.c.p. 84), or Winckel's disease (p. 91), of meningeal hæmorrhages (p. 107).

During the last years a few cases have been reported in *Centralblatt für Gynækologie*, where eclampsia was observed in the mother and in the baby. Wilke (l.c., 1893, No. 17), observed the following case: I para was delivered by forceps, pelvis slightly contracted. During labor one short eclamptic seizure, albuminuria 0.05 per cent., Esbach; baby was born alive, but found to react slowly. Six hours post partum, baby was taken with general convulsions and died twelve and one-half hours post partum in the fourth attack. The autopsy found changes in the brain, which Wilke considers as "Encephalitis"; he adopts the views of Jastrowitz concerning etiology of encephalitis in early infancy and childhood and believes it produced by the severe sickness of the mother, of which eclampsia (in the mother) was the expression.

---

(1) Alfred Vogel, Lehrbuch der Kinderkrankheiten, 1880.

(2) Adolf Baginsky, Lehrbuch der Kinderkrankheiten, 1889.

(3) A. Jacobi, Therapeutics of Infancy and Childhood, 1897.

(4) Max Runge, Die Krankheiten der ersten Lebenstage, 1885.

(5) Alois Bednar, Die Krankheiten der Neugebornen und Saeuglinge, 1853, page 155 of part II.

(6) L. Emmett Holt, The Diseases of Infancy and Childhood, 1897.

Woyer (l.c. 1895, No. 13), delivered a woman with eclampsia of a living child, apparently normal and healthy, which was taken with convulsions five hours post partum; the convulsions of the baby made exactly the same impression as those of the eclamptic mother. After the fourth seizure, thirteen hours post partem, the baby died. The careful and thorough *post-mortem* examination (including microscopic and bacteriological researches), failed to reveal anything except œdema of the lungs. Woyer says: "The observation of such a case where the anatomical examination proved negative, forces the observer to think of an acute intoxication of both organisms with the same virus, an intoxication which has produced the same effect in the maternal as well as in the infantile organisms."

Max Schmidt (l.c. 1897, No. 25), reports another case: A II para with severe eclampsia was delivered with forceps without difficulty of an asphyxiated baby, which was resuscitated. Two hours post partum an eclamptic attack was observed in the new-born, which was followed by from eight to nine more; death resulted twenty-nine hours post partum. Schmidt says that the clinical picture of eclampsia was identical in both mother and baby; besides the urine of the baby showed the same chemical and microscopical appearance as that of the mother. Furthermore, the kidneys of the new-born were in the state of acute nephritis, the liver in that of the hepatitis hæmorrhagica, both of which are, according to Virchow and Stumpf, signs of an acute intoxication of the organism, which produces eclampsia in pregnant and parturient women.

Besides these cases mention may be made of the following observations: Dohrn (l.c., 1886, No. 8 and 1895, No. 19), delivered two women, after death due to eclampsia through cæsarean section of babies, which were dead and in a state of rigidity of the muscles, different from rigor mortis. Dohrn says: "It appears feasible to think, that the condition of the baby as observed in our case has had a connection with the eclampsia of the mother."

A similar case: Fœtus dead with peculiar rigidity of the muscles delivered from an eclamptic parturient, is reported by

Stumpf (*Verhandlungen der Deutschen Gesellschaft für Gynäkologie*, 1886, p. 161.

I shall now report my own observation, which appears of sufficient interest to be put on record. I am fully aware that the clinical observation is lacking the support of chemical, bacteriological and fortunately anatomical researches, upon which it might be possible to base a definite judgment; still the coincidence of facts as observed in this case is unusual.

Mrs. E., aged twenty-two, I para, of sound German parentage, member of a large family of healthy, strong children, was always in fine health, given greatly to physical exercise.

In 1895, soon after marriage, she became *enceinte*. My services were engaged early; examinations of the gravida were made early and regularly. There was no abnormity found in any of her organs; gravida is tall, well built with roomy pelvis.

In the sixth month of pregnancy traces of albumin were first noticed in the urine; the albumin increased gradually in quantity, to 5-6 per cent. (Esbach); casts, granular and hyalin, were observed in numbers. The quantity of urine was large, one-third over the average; the total amount of urea was always in normal limits. The amount of albumin during the last weeks of pregnancy was as much as 6 per cent. (Esbach), at the same time œdema of the lower extremities appeared,

No untoward symptoms were observed during this time, such as headache, dizziness, nausea, change in eyesight, gravida; was only unable to take her usual walks, to her great discomfort.

On the third of January, 1896, delivery took place. Labor pains had begun the previous night at about ten o'clock; they were observed at great intervals up to two o'clock in the morning of the third of January, when they became more frequent. At about four A.M., I examined the parturient: Child in right occipito-anterior position, living; head in the pelvis, cervix obliterated, os dilated to the size of a silver dollar. Labor progressed entirely normally; the os was dilated in due time, the water bag ruptured spontaneously; further descent of the head without hindrance, until it reached the pelvic outlet.

Chloroform had been administered in obstetrical doses and when at nine A.M., for some time no progress of the head, which appeared in vulva, was noticed, forceps were applied, and a baby boy extracted without any difficulty.

After-birth came away soon, entire; a slight tear in the perineum was noticed and stitched.

The mother's recovery was uninterrupted, the œdema went away rapidly, so did the casts in her urine, but albumin in small amount was observed for a long time, when it also disappeared.

The baby cried immediately and was perfectly normal, weighing nearly eight pounds.

He slept all day and acted in every way as any other normal baby would do; the mother wished to nurse the baby and so he was put to the breast, not getting anything there, certainly, but some colostrum; the nurse gave him a little boiled water to drink.

On the second night, about thirty-six hours after birth, the baby was taken with convulsions, which came on without any warning; another attack was noticed early next morning and a third one at eight A.M. Neither one of these I had myself opportunity to see. At eleven A.M. there occurred another one, which was followed in half an hour by a fifth one. This last one occurred while I was in the room. The convulsions, which I saw, lasted for several minutes; they consisted in tonic and clonic convulsions of all the muscles of the body, beginning in the face; breathing was stertorous, baby was blue, towards the end of the convulsions he became semi-comatose. But the seizure was not to be considered very severe, breathing never ceased and he rallied soon afterward.

He was kept perfectly quiet, not handled at all; bromide of potash was given. There occurred only one more short and mild attack in the evening; from that time on the baby thrived on diluted cow's milk, later on a wet nurse's breast beautifully. From the time of the first convulsions he had not been put to the breast any more.

Orders had been given to the nurse to collect some urine, but it proved to be impossible of execution; the bowels had moved meconium freely.

The baby did not appear to be much affected by the convulsions, he was of a perfectly normal appearance when seen in the intervals. The convulsions were described by the nurse as being identical with those I saw myself. In the meantime he slept and drank a little more boiled water.

The question naturally arises: What caused the convulsions in the new-born? From the clinical observation of the baby nothing could be detected to account for their occurrence.

There was no sign nor symptom of any renal trouble and I believe uremia may be excluded, notwithstanding an examination of the urine was not made.

Neither was there any disturbance of the intestinal tract; the baby never vomited and the discharge of meconium was normal. There was no occasion for a hæmorrhage over the cortex cerebri; the delivery was speedy as far as the passage of the head through the pelvis is concerned; the application of the forceps on the head appearing in vulva was done without difficulty, the extraction without force.

The convulsions occurred without any warning in a healthy baby; were extended over a period of more than fourteen hours, and the baby recovered without any sequelæ. The mother was suffering from a true "nephritis of pregnancy" prior to and during delivery.

According to our present views on eclampsia parturientum this nephritis of pregnancy is caused by a toxic agent, which in turn is generated in the gravid organism. The symptoms produced by this "toxalbumin" early in pregnancy are nausea, malaisa; when the gravida becomes immune these symptoms usually disappear. In some instances, however, more severe intoxications are observed; mental depression, melancholia. The toxic agent may produce nephritis; with or without albumin in the urine it may lead to eclampsia inter or post-partum; it may be transmitted through the placenta to the fœtus in utero, and under favorable circumstances produce eclampsia in the new-born. The nephritis with œdema of the mother in our case makes it certain that toxalbumin was circulating in her system.

There is still another possibility of intoxication for our new-born; it had been put to the breast repeatedly, and certainly some colostrum was sucked and absorbed. This colostrum may have been the vehicle through which toxic matter was carried into the new-born's organism.

Mentioning these possibilities, I am fully aware that I move on the unsafe ground of theoretical speculations; I have no positive proof for either of them. But the case remains decidedly interesting: the mother suffering from a severe nephritis of pregnancy goes through parturition without eclampsia; the new-born, to all appearances normal and healthy, is taken with general convulsions resembling those of eclampsia parturientum.

1018 SUTTER STREET.

School Hygiene and Tuberculosis. L. Woodruff (*Cleveland Med. Gaz.*, September, 1897), in an article on school hygiene, dwells upon the dangers of the communication of tuberculosis in schools. No one having this disease should be permitted to attend or go to teach school. A case is reported in which a school teacher seems to have contracted phthisis in a room infected by his predecessor, who had died of the disease; but obviously other explanations may be forthcoming.—*British Medical Journal.*

Clinical Memoranda.

REPORT OF EXTENSIVE CONGENITAL HERNIA INTO THE UMBILICAL CORD, WITH MULTIPLE CYSTS OF THE CORD.*

BY WALTER F. BOGGESS, M.D.,
Louisville, Ky.

Ten days ago I was called to deliver a woman, and after a short, uninterrupted labor, a male child was born, weighing 7½ pounds. When the head had been brought through the parturient canal, I had some difficulty in delivering the body. Even after the shoulders had come through I found there was still some obstruction. Finally, when I had delivered the body I found what I take to be a very unique condition; there was a tumor over the umbilicus quite as large as a good-sized orange, about four inches above the umbilicus was a cyst of the cord as large as a hen's egg, one inch above that or five or six inches from the umbilicus was another cyst, a little smaller than the first. I ligated the cord above all these tumors, and was astonished to find that the first tumor (the one the size of an orange) was simply a rupture into the cord, and the sac contained many of the abdominal organs—all of the intestines, the mesentery, the pancreas, a portion of the spleen, enveloped in Wharton's jelly. In other words, there was a hernia of the cord containing nearly all of the abdominal viscera; there could be seen even the peristaltic movements of the bowels beneath Wharton's jelly. I found that the opening at the umbilicus was as large as my thumb. In trying to reduce this mass, I first nicked the cyst to give more room to work and to relieve the tension of the cord as much as possible, when all of the liquid contents ran out. Coming down to the rupture, and by careful manipulation trying to force it into the abdominal cavity, the child crying and the abdominal walls being perfectly tense, I found that I could not do it at once. By pressing the mass beneath my fingers it was reduced by degrees. Passing a ligature around the cord each time, a small portion was pressed into the cavity, until five or six ligatures had been thrown around the cord. The mass was finally placed almost entirely within the abdominal cavity, the cord being as large as my thumb where the last ligature was tied. Before tying the last ligature I noticed that there was a little spot in the Wharton's jelly that looked very much like true skin, or as if the intestine had grown to the Wharton's jelly and skin had formed; that was possibly one inch above the belly. After thoroughly tying the cord below this point, the cord being very thick and heavy, I cut all the superabundant tissue away. After I had cut it off, looking down into what had been the stump of the cord, I found where I had tied off what appeared to be a knuckle of one of the intestines which had apparently grown into Wharton's jelly, being the point at which it looked as if true skin had formed. After opening the sac, however, I thought that this might have been some fœtal structure connected with the umbilicus and not a knuckle of the gut.

---

* Reported to the Falls City Medical Society.

The child has done well; it nurses without difficulty; the bowels move two or three times every day and the child seems to be growing normally. None of this mass which I tied off has dessicated as we ordinarily desire the cord to do. This is the tenth day since delivery, and day before yesterday there appeared upon the dressing what seemed to be some of the meconium; this substance has been noticed every time I have dressed it since. There is not the characteristic odor of an infant's feces. I am inclined to think that what I took to be a knuckle of the gut must have been some fœtal growth around the umbilicus.

At the present time the child's condition is excellent, it nurses well, is not fretful, and seems to be thriving.

The case is unique, not only as to the size of the rupture, which was fully as large as an orange, but also because of the fact that there were connected with the cord two very large cysts, one of them having a distinct pedicle situated five or six inches from the umbilicus.

Dr. P. F. Barbour, in discussing the case, said that he would not be surprised if the growth was Meckel's diverticulum. The conditions detailed, the child having three or four fecal evacuations a day, could hardly obtain if he had severed a knuckle of the gut, for the gut is certainly patulous and doing its work properly. A Meckel's diverticulum, however, remained patent very rarely.

Dr. James B. Bullitt said that Dr. Barbour's supposition was probably the correct one, that this was a diverticulum. Dr.

Boggess' surmise was, also, probably correct, that he tied off a portion of the gut, for in all these diverticula a portion of the gut would be in evidence. A diverticulum connected with the calibre of the gut, and the material found on the dressings must have had its origin in the intestine itself. There could be but two explanations; one that it may have been a small amount of dark blood which had taken on this appearance; the other that portions of the fecal contents, the meconium, had found their way past the ligature. It would likely establish a fistula through the umbilicus, but there was reason why such a fistulous tract might not close of itself as many of these fistulæ do in adults, leaving the gut at that point permanently anchored at the umbilicus.

A CASE OF MEASLES COMPLICATED BY PNEUMONIA AND FOLLOWED BY EXTREME ANÆMIA.

BY J. H. ANDREWS, M.D.,
Atlanta.

E. M., a girl five years old, had been in fair health until February 4, 1898, when she developed the usual symptoms of measles. Before that time she had been somewhat anæmic and had suffered occasionally from indigestion. The appetite was rarely good, and at times was very poor. Otherwise there had been nothing unusual in her condition for several months. The measles followed the usual course until the eruption began to fade. The fever, instead of subsiding, as usual, continued to range as high as during the first days of the attack. The cough continued to be frequent, but was not as dry as at first. Consolidation was detected in the right side of the chest, behind, but was not at any time extensive. The fever subsided gradually, and the signs of consolidation became less distinct, but did not wholly disappear. The fever became practically normal twelve days after the appearance of the eruption.

During this time the child refused almost absolutely to take food, and the nutrition was maintained with the greatest difficulty. She began to be anæmic early in the attack, and this increased rapidly until it became so extreme as to be the source of serious anxiety. At the end of the second week the child seemed to be almost bloodless.

The appetite did not return when the temperature became normal, as it often does, and signs of consolidation persisted. The cough, though far less troublesome, still continued, and was most frequent at night. Iron was begun as soon as the temperature began to range below 100°. Tincture of iron was first given, but was not well tolerated by the stomach. It was invariably vomited, and was, moreover, administered with much difficulty. After several trials, the wine of iron was substituted, but the child rebelled so against taking it that every dose caused a struggle. The syrup of the iodide of iron was then tried, and was taken more readily than the other preparations. During this time wine was given, and malt extract was tried.

Three weeks after the rash appeared the child was in a state of great prostration. There was moderate cough, and broncho-vesicular breathing could still be heard, but there was no fever. Nourishment was only taken after a struggle. The anæmia was even more pronounced than it was a week earlier. At this time a mild laxative was given, and peptomangan was ordered as the internal treatment, and the child was rubbed once a day with cod-liver oil. The peptomangan was taken well, and was retained by the stomach. The child soon began to take nourishment better. At the end of a week there was undoubted improvement in appearance. The appetite slowly improved, and the signs of consolidation slowly disappeared. The anæmia gradually improved, until the child, at the end of five weeks, was of much better color and weight than she had been previous to the illness. The external use of the cod-liver oil was discontinued after ten days. It was then given in small doses internally, and the peptomangan was continued.

The case was of interest, not so much because of the complication of pneumonia, which is not uncommon in measles, as from the rapid appearance of the anæmia and its extreme gravity.

Pure Infants' Food.—In the perfection of our methods of infant feeding here in America we have made the greatest strides in the art of grossly preparing the food for infant use. We can now, thanks to the energy of Prof. Rotch, of Boston, give milk of any strength, accurately put together, to infants. But this is not all that is necessary. We may have the exact percentages, but if the food is not kept pure, or moderately so, and free from acids and toxins, we shall see it disagreeing with the patient.—Koplik in *The Medical Record.*

Occasional Periscope of Teratology.

BY J. W. BALLANTYNE, M.D., F.R.C.P., EDIN.,
Edinburgh.

Jayle and Jarvis : Ectrodactyly. (*Bull. de la Soc. Anat. de Par.*, 5s., xii., 139, 1898.)

Congenital malformations of the fingers and toes are not very rare, but certain combinations of digital anomalies are decidedly uncommon. A case of this kind has been reported by Jayle and Jarvis. The patient, a woman twenty-six years of age, showed a malformation of the right hand and of both feet. The right hand was a little shorter than the left, and ended in three digits only. There was a normal little finger, a large ring finger and a broad and flat thumb with a double nail. There was neither index nor middle finger. Radiography showed that the carpus was complete; there were five metacarpals, of which the three placed internally were separated by a distinct interval from the two placed on the outside. The fifth metacarpal carried a normal digital skeleton; the fourth and third were surmounted by the phalanx of the ring finger resting on a double articular facet, which had, therefore, to be regarded as the united ring and middle fingers; and the first and second metacarpals carried the thumb, which really consisted of the fused thumb and index, there being two phalanges in the one and three in the other. There was, therefore, both ectrodactyly and syndactyly in the hand. The left foot ended in two toes, believed to be the great toe and the little, the other three being absent. Radiography showed that the first and second cuniform bones of the tarsus each carried a metatarsal which both converged towards one of the digits; the third cuniform supported the rudiment of the third metatarsal, which was lost in the soft parts; and the cuboid was followed by a normal-looking fifth metatarsal and the three atrophic phalanges of the little toe. The right foot showed almost identical malformations: *viz.*, ectrodactyly. There were no other anomalies, and the patient walked well. She was the fourth of a family of thirteen. The fifth member of the family, also a female, showed in one foot only three toes—the hallux and the fourth and fifth digits. The twelfth child, a boy, had one hand malformed in the same way as the patient. The parents were not malformed, and the patient herself had a child which was normal. The interesting facts in the case are the occurrence of family prevalence in regard to the ectrodactyly and the association of ectrodactyly and syndactyly in the same individual. The value of radiography in clearing up the nature of the anomalies was well demonstrated.

Apert, E.: Congenital Renal Ectopia; Lung with Four Lobes. (*Bull. de la Soc. Anat. de Par.*, 5s., xii., 154, 1898.)

By accident Apert discovered during the performance of an autopsy on a male adult, who had died of pneumonia, that the right kidney was absent from its normal position. It was of normal size, and was situated in the true pelvis, lying against the left half of the anterior surface of the sacrum and reaching the middle line with its inner part. The rectum was situated further to the left than usual, but the bladder occupied its normal position. The shape of the kidney was only slightly modified, and it received two arteries arising from the right common iliac about 2 cms. from its origin. Each was accompanied by a vein, and the two veins opened into the right common iliac. The arrangement of the vessels proved that the renal ectopia had been congenital in origin and not acquired. The ureter was very short. The renal anomaly was not suspected during life, but would undoubtedly have been detected if necessity had arisen to make a pelvic examination. The right lung consisted of four lobes instead of three, and these were separated from each other by an X shaped fissure.

Laguesse, E., and Bué, V.: Human Derodyme Embryo. (*Journ. de l'Anat.* xxxiv., p. 44, 1898.)

One of the most important contributions made to teratology during the present year is that of Laguesse and Bué on a human derodyme embryo. Double-headed fœtuses with two legs and two arms and with the trunks more or less intimately united (*Derodyme*, s. *Dicephalus somatopagus*) have been reported from time to time, and some of them (*e.g.*, Rita-Christina) have survived their birth; but the specimen described by Laguesse and Bué was altogether unique, in that it was an embryo of only 19 mms. Unfortunately, the embryo had been dead for some little time before the abortion-sac (which measured 6 cms. by 4 cms.) was expelled, for it showed a certain amount of friability, and there was some eventration of the abdominal and thoracic contents. There was a single thin and short umbilical cord. The age of the embryo was difficult to ascertain; but it seemed, notwithstanding the clinical data and its length, that it could not have been more than three or four weeks when it died. Serial sections were made of the whole embryo. It is impossible in an abstract to do more than refer to one or two of the interesting facts which this examination brought out. There were two chordæ dorsales well formed and quite distinct, and these were embedded in a vertebral column which was double in the greater part of its extent, although it was single in the sacral and lumbar regions. Even in the sacrum, however, unusual width was observed. The spinal columns were quite cartilaginous, and there were two cartilaginous bases cranii and two separate crania. The limbs were only buds containing some cartilaginous nuclei. There were two quite separate spinal cords, two mouths, two œsophagi, two stomachs, but only one liver. The heart showed two auricles, but four ventricles, one pair of which (that on the left fœtus) was very small. The external genital organs could not be made out, but internally there was a Wolffian body on each side. The monograph ends with some interesting reflections on the present state of our knowledge of the origin of double monstrosities. It is certainly very striking to find that the old conflicting theories of division of a single embryo and fusion of two embryos have lost much of their interest in the presence of the newer views of polyspermy and the action of external agencies in diplogenesis.

Wood, A. Jeffreys: Congenital Diaphragmatic Hernia. (*Intercolon. Med. Journ. of Australasia*, iii., p. 96, 1898.)

The case was one of a male infant fourteen months old. The left chest was dull on percussion, with absence of breath sounds, and the heart's apex was displaced to the right of the sternum. The left chest was explored with a needle, but no pus was discovered. Auscultation over that part revealed intestinal gurgling, and percussion in the supine position gave a tympanitic note. The diagnosis of congenital diaphragmatic hernia was made. When about thirty-one months old the child became very ill with symptoms of intestinal obstruction. Accordingly, an oblique incision was made in the left hypochondrium, and the intestines were drawn down from the pleural cavity, but no obstruction was found. The child died during the operation, probably from ptomaine poisoning. At the autopsy a semicircular deficiency was found to exist in the posterior part of the left leaflet of the diaphragm. The peritoneum was continuous, with the pleural membrane. The spleen lay completely in the left pleural cavity, and there was a long meso-cæcum. The left lung was quite undeveloped. During life there had always been marked rapidity of respiration, but no dyspnœa. The author quotes largely from Booker's paper on the subject, which appeared in the ARCHIVES last year (September, 1897).

Duchamp: Dextrocardia and General Inversion of the Viscera. (*Loire Médicale*, p. 87, April 15, 1898.)

Duchamp reports the case of a girl, fourteen years of age, who was seized with grave asthmatic symptoms. From these she suddenly completely recovered, and during the physical examination of the chest which was then made, it was discovered that the apex beat was on the right side. Seven years later she came under the care of the author, and he then found dextrocardia with transposition of stomach and liver. With the help of radioscopy the heart could be distinctly seen with its long axis directed from above downwards, and from left to right. An obscure zone could be seen on the left side, while the right hypochondrium was clearer. During respiration the rise and fall of the liver could be easily distinguished. The lungs were quite transparent. It is interesting to note how in this case the radiograph was employed to diagnose both the inverted state of the viscera and the healthy condition of the lungs. The patient was not left-handed. A sister had had a dermoid cyst of the ovary, and her mother was asthmatic.

Cousin, G.: Anomalies of the Thoracic Duct. (*Marseille Médicale*, p. 334, May 15, 1898.)

Cousin has met with three cases of anomalous arrangement of the thoracic duct out of eight subjects examined. In one, an eight months' fœtus, the thoracic duct divided into two at the level of the head of the second rib on the left side. After a course of about 1½ cm. the two branches reunited. This anomaly resembled the bifidity of the duct met with normally in birds. In the second case, a child six years old, the duct had a double curve, but no cross branch. The third anomaly was a very interesting one; it occurred in an adult, and the duct was normal up to the seventh dorsal vertebra, where it divided into five branches, all arising at the same point. The two outer branches were the largest; they reunited, forming thus an oval space, and into the right one opened a single trunk formed by the union of the three smaller branches. This plexiform arrangement the author regards as an anomaly by reversion to the type of marsupials, etc.

24 Melville Street.

Congenital Ichthyosis. J. M. Winfield and J. M. Van Cott. (*Journ. Cutan. and Genito-Urin. Dis.*, November, 1897), report a case of congenital ichthyosis rendered noteworthy by a microscopic examination of the affected skin. The infant, sex not stated, died when two and one-half weeks old from inanition and loss of temperature. It was the second ichthyotic infant the mother had given birth to, and before delivery she had been exceedingly nervous and worried as to the possibility of this happening; after delivery the maternal mental state became so bad as to necessitate the separation of the mother and infant. The necropsy showed absence of the thyroid gland, while in the lymph spaces of the skin and subcutaneous tissues were numerous micrococci, and in their neighborhood was coagulation necrosis of the tissues. The horny layer of the skin was considerably thickened, the rete Malpighii was fairly normal, and sweat and sebaceous follicles were present. It is believed that there was a dermatitis set up by a micrococcus whose exact origin and nature were obscure, but which must have been the result of intrauterine infection. The absence of the thyroid may have removed a restraining influence upon the growth of the micro-organisms, for it has been shown that bouillon made from thyroids has such an inhibitory action on bacteria.—*British Medical Journal.*

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

SEPTEMBER, 1898.

Edited by FLOYD M. CRANDALL, M.D.,
Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician,
Hospital for Scarlet Fever and Diphtheria; Consulting Physician,
Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241–243 WEST 23D STREET, NEW YORK.

THE PATENT ON ANTITOXIN.

The granting of a patent to Professor Behring as the inventor of diphtheria antitoxin has very naturally caused a sensation in the medical profession of this country. The American medical profession has sternly set its face against every attempt on the part of its members to make scientific discoveries the means of personal profit. Such discoveries as the medical profession have made have been fully and freely donated to the service of suffering humanity. We quite agree with the statement of the *Medical Age* that Professor Behring's claim to be the exclusive inventor of antitoxin not only indicates a spirit of commercialism which does its possessor no credit, but it displays a disposition to assume credit for the labors of others and to make of these an occasion of personal gain which can only indicate a high degree of moral perversity.

Professor Behring's claims in his application for a patent will be found on another page of this number. They are somewhat surprising, as they include ideas and principles which were of gradual growth and were established by the researches of many previous workers. The granting of the patent virtually ignores the labors of scores of patient observers, the foremost of whom was Pasteur. We would not in the slightest degree detract from the importance of Behring's work, nor for a moment forget that he exhibited true genius in turning the knowledge gained by others to practical ends. But the truth, nevertheless, remains that his work was but the last link in a long chain, the first and equally important links of which were forged by others. The granting of a patent to Behring for his technique, should in consistency be followed by patents for the technique of detecting, isolating, and cultivating the bacilli which are the necessary basis of his work.

We regret to say that we must agree with the following words from the *Medical Age:* "If Professor Behring admits any merit in the work of his predecessors and contemporaries, his claim to be the exclusive inventor of diphtheria antitoxin is in contravention of all the ethics of a scientist's career. Had Simpson patented chloroform anesthesia, or had Lister patented antiseptic surgery, the world would have had two selfish empirics, and lost two medical heroes. If Behring, by the righteous judgment of mankind, can be adjudged sole and undisputed inventor of antitoxin, he has a place in the Temple of Fame for perfecting the most beneficent discovery of modern times. It remains to be seen whether the temptation to be rich will overcome his ambition to be great, and whether for a tinsel crown he will barter a diadem of everlasting renown."

This judgment may be severe but it is difficult to form any other. The excuse is certainly not available which O'Dwyer might have had for patenting his intubation instruments. In O'Dwyer's case there was danger that the tubes, whose conformation was not understood, would be incorrectly made and the operation of intubation would thereby be brought into disrepute. This, indeed, did happen in many quarters. In Behring's case there is no such excuse. While it is true that some inferior antitoxin has been placed in the market, the most of that used in the United States is every whit as good as that of Behring, and most practical observers believe it to be better. It has been extensively manufactured for three years and there are at least two private firms and several boards of health who are making immense quantities of absolutely reliable serum of the highest potency. A large proportion of the serum used to-day is derived from these sources. It is difficult to escape the belief that Behring's action has a more or less mercenary basis.

In addition to these objections to granting a patent to Behring as the inventor of antitoxin, is the still debated question of priority between him and Roux, and the more important fact that Behring can lay no possible claim to the discovery of the great fundamental principle underlying all serum therapy, namely, that the blood of immune animals is efficacious for the treatment of others. It is certainly unfortunate for the scientific reputation of Behring, for the resentment raised by his action will naturally result in a tendency to minimize the great work he has really done.

LAPAROTOMY IN TUBERCULAR PERITONITIS.

In a recent number of *Archives für Kinderheilkunde* three varieties of tubercular peritonitis are described by Monti. The first division includes those cases, subacute in character, in which the tubercular inflammation of the peritoneum is accompanied by a serous exudation, cases in which the intestines may be free or show few adhesions. The mesenteric glands may be unchanged or slightly enlarged.

The second class of cases compose those in which the mesenteric glands show cheesy degeneration, and in which the intestines may be tightly bound together.

The third class includes cases in which the peritoneum has tightly bound the intestines together without any special change in the mesenteric glands.

In all, the author has observed twenty-one cases. In nine, there was tuberculosis of the peritoneum, with ascites, but with no change in the intestinal walls or mesenteric glands. One case showed the same characteristics, with hyperplasia of the mesenteric glands. Seven were cases of tubercular peritonitis with extensive adhesions, but no ascites. Four showed tuberculosis of the mesenteric glands, with tubercular peritonitis and extensive adhesion.

In the first series of cases the abdomen usually contained so large an amount of fluid that nothing could be determined by palpation. In the second series the palpation was painful. Meteorismus was present, and there was marked disturbance of defecation. Fluctuation could not be made out.

In the third series tumors could often be diagnosticated by means of palpation. Otherwise the symptoms did not differ from those of the second series. Not one of the nine cases of miliary tubercular peritonitis with exudation was fatal; eight recovered; one improved. Laparotomy was performed in six cases, with complete recovery in each. Three were treated by means of internal medication, chlorate of soda, hydro-iodide of soda, and diuretics being used, together with baths. Of these, two recovered. In one, the parents of the patient discontinued the treatment.

DEVELOPMENT OF THE SPECIAL SENSES.

All observers upon the mental condition of children agree that most of the special sensations are almost absent at birth, and develop rather slowly during infancy. It is certain that the infant at birth is quite unable to see. Impressions made upon the retina seem to be so vague as not to enter into the consciousness of the child. It would seem that few children recognize objects by sight before the end of the first month. Ideas of distance do not develop until a considerably later period. The child may be frequently seen to grasp at objects far beyond his reach, and he is usually very slow in learning to judge of comparative distances. Color-blindness is the normal condition of the infant. While bright colors will attract the eye of an infant, he does not learn to distinguish them so that he can pick them out with certainty until after the end of the second year.

Hearing is also very slow in its development. It seems probable that the new-born infant does not actually hear sound. Certain sounds, like the slamming of a door, may cause the child to start, but he evidently *feels* them rather than *hears* them. Localization of sounds develops to a certain extent very early in some children. By the tenth week they have been observed to turn the head in the direction of a distinctive sound. The child learns very early, in limited degree, to understand the meaning of certain sounds. Hearing being one of the earlier of the senses in its development, and the child being so dependent upon it, the backward mental condition of the congenitally deaf child is readily appreciated.

Lavage in the Gastro-intestinal Affections of Sucklings.—O. Cozzolino (*La Pediatria*, January, 1898) describes the operation of washing out the stomach as practised upon infants. It is contra-indicated in the case of infants in a state of collapse, and in those suffering from affections of the respiratory organs or from cardiac lesions. The author regards it as the best means of rapidly and certainly cutting short an attack of infantile dyspepsia, and preventing the concomitant diarrhœa and gastro-intestinal catarrh. It is also of use in habitual vomiting when this is due to catarrhal lesion of the digestive tract, and the child shows a decrease in body weight or an insufficient increase; in cases of prolonged labor where the infant has swallowed much liquor amnii; and in nervous disturbances, such as convulsions, which are often due to the irritation of noxious products remaining in the alimentary canal. It is also of use in infants who have been given soothing syrups containing opium, and who are suffering from the effects of that drug. Cozzolino regards as rather fanciful Troitzky's suggestion that lavage should be used as a preventive measure when lactation is disturbed by moral affections, etc., in the nurse.—*British Medical Journal.*

Bibliography.

Brief Essays on Orthopædic Surgery, Including a Consideration of its Relation to General Surgery, its Future Demands and its Operative, as well as its Mechanical Aspects, with Remarks on Specialism. By Newton M. Shaffer, M. D., *Surgeon-in-Chief to the New York Orthopædic Dispensary and Hospital; Clinical Professor of Orthopædic Surgery, University of New York* (*Medical Department*). New York: D. Appleton & Co. 1898. Pp. 81.

This is a unique and very interesting little book. The various essays of which it is composed partake in no way of the character of the ordinary medical paper. They consider, rather, the relations of the specialty of orthopædic surgery to other departments of medicine, its future and present demands, and its peculiarities. It will prove interesting alike to specialist and general practitioner.

Yellow Fever. Clinical Notes by Just Touatre, M. D., Paris, *Former Physician-in-Chief of the French Society Hospital, New Orleans; Member of the Board of Experts, Louisiana State Board of Health. Translated from the French by Charles Chassaignac, M. D. President New Orleans Polyclinic.* New Orleans: *New Orleans Medical and Surgical Journal.* 1898. Pp. ix., 206.

This work is of interest to the pediatric practitioner as it contains a chapter of considerable length upon yellow fever in children. To the general practitioner in the South it will prove a work of great value, for it is probably the most practical monograph which has appeared upon yellow fever. The position of the author is somewhat peculiar. On the eve of his return to France, after thirty-three years of practice in New Orleans, during which time he has had a vast experience with yellow fever, he expresses a desire, if possible, to leave to this country, which had been so hospitable to him, a token of gratitude. Such token, therefore, he leaves in the form of this admirable work, being practically the record of his own experience.

He reports many cases of the disease in children, eleven of which are given in detail and are illustrated by charts. He believes that the type of yellow fever is the same in children as in adults and thus summarizes his views:

"In children, the symptoms of the period of congestion are more accentuated; vomiting, congestion of the face, delirium; but the secondary lesions of the kidneys and the liver are much more rare. Black vomit especially has not the same gravity.

"Very virulent yellow fever, or that attacking an enfeebled constitution, is evinced in the child as well as in the adult, by the rapid succession of such symptoms as show the gravity of the disease—temperature reaching 105° or above; albuminuria on the second day; black vomit and icterus on the fourth day; suppression of urine.

"The disease is absolutely the same in the child as in the adult, and the two laws of the fall in pulse rate and of the divergence between the pulse and the temperature are just as characteristic."

Outlines of Practical Hygiene. By C. Gilman Currier, M.D., *Associate of the American Society of Civil Engineers; Fellow of the New York Academy of Medicine.* Third Edition, Revised and Enlarged. New York: E. B. Treat & Co. 1898. Pp. vi., 482. Price $2.00.

This excellent work which has now reached the third edition contains essentially all that progress in sanitary science and practical hygiene have established up to the present time. It contains in concise and simple form all that the ordinary practitioner requires upon practical hygiene, and is upon the whole the best of the single volume works upon the subject. The pediatric practitioner particularly will find much in its pages to aid him in his particular department of work.

The Infective Theory of Rickets—Mercoli (*Gazz. degli Osped. e delle Clin.*, January 30th, 1898), again draws attention to his experiments and observations on this subject. He believes that rickets is due to infection from the presence of streptococci and staphylococci. These organisms are constantly found in the mouths of children and the mammary ducts of nursing women, and are swallowed. As long as the alimentary canal is healthy nothing happens; but if this is out of order from catarrh, dentition, etc., and if in any way these organisms find their way into the blood and are localized in all the organs, but especially in the parts of greatest functional activity, the disease is produced. In the infant these are the nervous system and the epiphysial ends of the bones; hence the symptoms in rickets. The bone lesions are considered by the author to be examples of chronic osteomyelitis of a special type.—*British Medical Journal.*

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Stated Meeting, June 14, 1898.

FREDERICK A. PACKARD, M.D., PRESIDENT.

DR. ALFRED HAND, JR., presented a case of "essential tremor." The patient was a colored girl, thirteen months old, with a negative family history. She had whooping cough at three months, and measles at ten months. She was fed at the breast at night, and on condensed milk during the day. She was slightly rhachitic. For several months it has been noticed that the head is moved by a lateral tremor, which ceases during sleep, and also when the attention is drawn to an object held within a foot or two of the child's face. When the object is carried away some distance, the attention being still directed to it, the tremor returns. There is no mystagmus, the heart and lungs are clear, knee jerk is normal, sensation is unimpaired.

DR. E. E. GRAHAM.—Henoch speaks of what he calls "nodding spasm," which may be up and down or lateral motions. I have seen two or three of these cases, and it seems to me that this case may possibly be one of so-called "nodding spasm." In the history of these cases there is usually, as in this case, more or less of rhachitis, and the explanation has been that it is simply a functional nervous manifestation from the child's weakened physical condition. The cases that I have seen, some two or three, have all been in the out-patient department of the Jefferson College, and my impression is they all got well.

DR. D. J. MILTON MILLER.—I think it is undoubted that these cases of infantile tremor, not including the congenital, are in all cases evidences of malnutrition. I have seen quite a number of these children. I saw a poorly-developed and under-nourished child of eight months last winter who also had a marked tremor following measles. Such cases all recover if the nutrition is looked after. This child was fed on condensed milk, and is rhachitic; that is the history of almost all of them. These are the instances where the general practitioner is better able to come to a diagnosis than a specialist, especially a neurologist, because the latter immediately thinks of a cerebral sclerosis or some trouble with the cortex. If Dr. Hand looks after the nutrition of his patient, it will probably recover without the use of arsenic.

Dr. F. A. Packard.—There is a patient at present in the country branch of the Children's Hospital with the diagnosis of "nodding spasm." In this case any contagious disease that happens to gain entrance to the hospital is promptly contracted. and it is always rather a relief to substitute a more satisfactory diagnosis than "nodding spasm," which is simply a confession of our inability to state the cause of the trouble. In this case the nodding movements began after chicken-pox, but they are of a much coarser character than is the tremor of debility.

Dr. S. M. Hamill read a paper upon "Sarcoma of the Kidney of Unusual Size."

Dr. D. J. M. Miller.—Apropos of this very interesting case of Dr. Hamill's, I would like to ask Dr. Graham if the case he showed here last fall (the case of supposed sarcoma of the kidney) was ever operated on. Many of these cases if operated on early, as is well known, result in complete recovery.

Dr. E. E. Graham.—The case was operated on, but after the operation was thoroughly started the surgeon saw it would be impossible to remove the mass without sacrificing the life of the child at the time. Unfortunately the parents would not allow the slightest examination *post-mortem;* and while the surgeons during the operation felt convinced that the case was one of sarcoma of the kidney, we have no sections to prove it.

In regard to the question of a tumor in these cases, I think it depends upon the individual characteristics of the physician who is examining the case as to whether he decides that he finds a mass that can or cannot easily be determined in the abdominal cavity. Much also depends upon the stage in which you see the case. The cases of intussusception during the first forty-eight or twenty-four hours, almost all have a relaxed condition of abdomen, so that an intussusception, even if small, is rather easy to outline and determine. The first case had existed for four days when I saw it, and then the abdomen was enormously distended. The second case had lasted for several days, and the abdomen was also enormously distended. A majority of observers maintain that where they see cases early a tumor can be outlined; late, it is difficult to outline. In the first case the tumor could not be detected by a single finger passed into the abdominal cavity by the surgeon. That, to my mind, shows what a frail thing this sign is, if an experienced surgeon, passing a finger into the abdominal cavity, cannot detect an intussusception in the small bowel that is at least three inches in length, and that had lasted for four or five days, and, as always happens in these cases, at the constricted portion a certain amount of swelling takes place. If the abdomen had been relaxed in that case I doubt if a tumor could have been detected. In the second case, the tumor should have been detected if the abdomen had been relaxed. In regard to the giving of enemata, in looking up the subject of intussusception, I have been struck with the fact that where enemata do good it is in the first twenty-four or forty-eight hours of the disease. The point that decides whether a case is going to get well in intussusception is whether the intussusception can or cannot be reduced. If you see a case in the first twenty-four hours, your enemata have a chance of reducing it; and as the choice between liquid and gas, I prefer liquid; you can more easily handle it. In the second twenty-four hours and in the third twenty-four hours you might reduce. After the third day I question whether a physician is justified in acute cases. If you examine carefully that specimen you will see why enemata would do no good. In the first place, the swelling practically constricted that bowel, so that all liquid or air could do would be to jam the intussusception further down. Adhesions also interfere, to a certain extent, with a surgeon when he opens the abdominal cavity. The thing that prevents children from getting well is that the bowel is so swollen that reduction is impossible. I find where intussusception is reduced the mortality is 38 per cent.; where intussusception is not reduced the mortality is over 80 per cent. Enemata may do harm, for instance, in those cases, the bowel is in such a condition that the careful handling of it by surgeons may produce rupture. If we see a case lasting more than three days, the child's chances would often be better without enemata.

Dr. Dougherty.—I would like to ask Dr. Graham whether any waves of peristalsis were visible in either of these two cases. I do not know whether they would occur so late, but I believe that they are an important sign of strangulation or intussusception.

Dr. Graham.—I did not notice any.

Dr. Alfred Hand, Jr., read a paper on a rapid method for ridding the throat of diphtheria bacilli after disappearance of the membrane. The method consisted of the thorough application to the mucous membrane, once a day for several days, of a solution of sixty grains of nitrate of silver to the ounce of water.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIC SURGERY.

Meeting of March 18, 1898.

A. B. Judson, M.D., Chairman.

CONGENITAL DISLOCATION OF THE HIP.

Dr. R. Whitman presented a little girl two-and-a-half years of age on whom he had operated for congenital dislocation of the left hip when she was eighteen months old. The method followed had been the bloodless operation of Lorenz, and the plaster of Paris bandage had been finally removed last November. In the absence of any trace of deformity or disability it was impossible to detect any difference between the two sides, and the cure was evidently perfect. He thought it was the first cure attained by this method in New York.

Dr. T. H. Myers reported that he had seen last week the girl on whom he had operated at the age of three-and-a-half years in January, 1895, by the method of Paci. The joint was firm, with no telescoping. There was no limp, and the child runs, jumps and hops with perfect freedom. He thought it was the first successful application in this city of Paci's method.

Dr. A. M. Phelps said that in the patient exhibited there was a perfect reduction, but it was probably a case of dislocation at birth, in a child in whom the acetabulum was normal. He did not believe that the bloodless forcible reduction was a good method. After a child had passed the second year the head was developed, the acetabulum was undeveloped and the capsular ligament was drawn out and constricted like an hour-glass, making reduction mechanically impossible. There was no reduction—simply the conversion of a posterior into an anterior dislocation. The only way was to make an acetabulum and put the head of the bone into it.

Dr. G. R. Elliott said that the acetabulum in these cases was fairly developed in children up to four years of age. The head was felt as it was forced over the border of the socket; it was felt to be retained, and it could be easily dislocated again. If it was retained by fixing the limb at a proper degree of abduction, it could not get out of its position, being held by the ligaments and muscular structures, and the probability of its leading to a more perfect acetabular development was greater than after an operation in which the ligaments and muscles had been cut.

Dr. Whitman said that the head of the bone was capable of making an acetabulum, and that a rudimentary acetabulum existed in nearly all cases, as was proved by the observation that when the head of the femur was pushed in place it stayed there. When the dislocation was anterior, which was not usually the case, the bone should be twisted around.

POTT'S DISEASE TREATED BY FORCIBLE REDUCTION OF THE DEFORMITY.

Dr. V. P. Gibney showed a boy twelve years of age who had had Pott's disease as long as he could remember. There had been no previous treatment. The kyphos had been very marked. On March 1, 1898, a moderate degree of force under an anæsthetic had reduced the kyphos a good deal, the parts yielding easily, and a plaster of Paris corset was applied in the prone position, from the pelvis to the axillæ. He was kept in bed for three days, much against his wishes, and since then has been playing about the wards. There was absolutely no reaction. Another boy, six years of age, was presented wearing a plaster of Paris corset after forcible reduction of a well-marked kyphosis. Previous treatment had been by apparatus, jackets, etc. The disease, in the dorsal region, had been long since arrested. The projection had been considerably diminished by an amount of force not greater than in the first case. During the operation his respiration became rather labored, and the anæsthesia was discontinued. The only reaction was a slight slowing of the pulse after the operation, and on one day since. These patients were presented to show that deformities can be materially reduced by this method without reaction or any immediate bad results. In after-treatment it was not necessary to fix the head and shoulders. If the plaster is brought well up there would be no recurrence. The English surgeons were advocates of the steel apparatus; they criticise the French who put their patients up in cotton covered with plaster of Paris. There were plaster jackets and *plaster jackets.* If too much cotton were used, a good fit would be impossible, the parts would recede, and the jacket would become loose. If the plaster was properly applied it would give no trouble. The fear that forcible correction would induce tubercular action in the meninges or elsewhere was not well founded. In an experience of years in the forcible correction of deformities of the hip, it had been the rarest thing in the world to get any dissemination of the bacilli.

Dr. Phelps presented a girl seven years of age wearing a plaster of Paris jacket after forcible reduction under ether of an extremely large kyphos. The disease had been of four-and-a-half years' duration, and was between the sixth and ninth dorsal vertebræ. A jacket had been worn for four years. The operation seemed very cruel, and had been undertaken with fear and trembling, only partially dissipated by the favorable reports of French operators. The kyphos had been nearly all reduced after so much snapping and cracking that it was thought the child's back was broken. There was no reaction, and the patient was up and about in less than four days. The procedure was applicable to the early stages of the disease. In the presence of a large kyphos or anchylosis or abscess it was a dangerous method.

Dr. W. R. Townsend related a case in which an inconsiderate resort to this operation would have been disastrous. A girl three-and-a-half years of age was under treatment upon an open frame for disease in the upper dorsal region. There was a cough and impeded respiration and other symptoms of bronchitis, followed rather suddenly by asphyxia and death. Autopsy showed a retro-pharyngeal abscess in the median line directly over the vertebral column and extending to the right. There was no pressure on the trachea, which was normal in size and not flattened. Numerous enlarged glands had pressed on the recurrent laryngeal nerve and caused paralysis of the vocal chords. The second dorsal vertebra was so diseased that the finger was pushed right through to the spinous process. Forcible reduction would have ruptured the abscess or done some damage to the bone. The dangers of the operation were readily realized. The procedure might give good results in suitable cases, but it should be well tried before being widely recommended.

Dr. Myers had not as yet heard of any cure as the result of this procedure. The cases should be very carefully selected and care taken to ascertain that no abscess was present. The operation was dangerous, and results should be waited for before the method should be commended at all. The protection given to the spine after the operation should be most perfect.

Dr. H. L. Taylor could not think well of this method without the light of further experience. The tendency had been to make the procedure much less radical than it had been at first, when reduction of the deformity sometimes called into action all the strength of the operator, with, perhaps, resection of the projecting spinous processes, and in suitable cases excision of wedges of bone. In some instances the spinous processes were wired together after reduction, and it was considered important to encase the head and the pelvis in the plaster of Paris jacket. With the obvious tendency toward simplification of the treatment, it remained to be seen how much of the original operation would remain after the method had been well tried. It was safe, thus far, in the hands of experts, but it would be dangerous to encourage the general practise of the method.

Dr. R. H. Sayre said that if the diagnosis were made before the kyphos appeared there would be no necessity for this operation. He thought that if it could be determined in advance which cases could be straightened without damage, this operation could be readily accepted. In some cases there were no vertebral bodies left, and the column was held together by the spinous and transverse processes. In other cases the bone was so diseased that forcibly straightening the spine would produce gaps between the vertebræ, leading to the production of abscesses. It was extremely doubtful whether this method should be employed. In any event, the cases should be most carefully selected, and there should be no elevation of temperature and no morbid action present.

Dr. Manley thought that the forcible correction of this deformity in appropriate cases was justifiable, to be followed by some form of thoracic support after correction.

Dr. Elliott said that two cases of forcible correction followed by death had been recently reported in the *British Medical Journal.*

Dr. A. B. Judson had seen no reason for not being satisfied with treatment by the use of the steel brace. Patients with Pott's disease suffered so much inevitable daily traumatism in standing and walking that the injury accompanying the method under discussion would not seem to be necessarily fatal or even dangerous. The question was whether it was wise to add to the unavoidable and habitual traumatism. If we could restore the curves and strength and mobility of the spine, almost any treatment would be accepted. But it could not be hoped to carry recovery to that desirable point. Moreover, it was very doubtful whether consolidation would come to our aid at the opportune moment to secure the improvement in shape made by the forcible reduction.

Dr. Phelps had looked up the literature of the subject. On the one hand it had been stated and demonstrated by radiographs that bone had been reproduced in cases in which there was wide separation after reduction, and one operator had reported 204 cases with no deaths and no accidents. On the other hand, other operators had reported many relapses, sometimes with paralysis, a number of deaths had been reported, the kyphos had been reduced in a cadaver with rupture of an abscess, and in another subject with fracture of a vertebra. Some investigators are enthusiastic in favor and others condemn in round terms. Although there was probably a field for operation it was necessary to proceed slowly.

Dr. Gibney said Dr. Townsend's patient was an exceptional one. Most patients seen offer no contra-indication to the operation. He had not found that patients with a deformity of the spine were cheerful at the prospect of going through life with it. They were morose and felt that nature had treated them harshly and it was necessary to do something for them. If he had a child with such a deformity he would welcome almost anything which promised relief. He understood the dangers of the operation and was opposed to its wholesale performance. While fully appreciating the importance of what had been said he thought that clinical facts were also entitled to weight. He believed that deformities could be materially reduced by the method, but that it should be done gradually at several sittings rather than all at once.

LATERAL CURVATURE OF THE SPINE TREATED BY FORCIBLE REDUCTION.

Dr. Gibney also presented a patient, a girl fourteen years of age, affected with lateral curvature, whose parents had urged that something be done to correct the deformity, being willing even to have a section done. Under an anæsthetic a twisting motion was employed for some five or ten minutes, and the patient was then put into plaster of Paris. She was treated three times. There had been no reaction. She had gained 1¾ inches in height, and the back was in a much better position than it had been before.

MALIGNANT DISEASE OF THE SPINE.

Dr. Taylor presented a man forty-seven years of age, in poor general condition, and giving a history of very severe pain in the lower part of the back for eight months. In that time he had lost much flesh and had been disabled by limitation of motion in the lumbar region of the spine and difficulty in locomotion and other movements of the body. The upper part of the back was rounded and the spine of the first lumbar vertebra was prominent and deviated to the left. There was a well-defined area of sweating in the right loin, probably from invasion of a sympathetic ganglion and vaso-motor paresis. This symptom was not present in tubercular disease of the spine, but he had observed it before in cases of malignant spinal disease. Partial relief would probably follow the application of a jacket, and morphine would be given to control the pain.

Dr. Sayre suggested the use of the actual cautery to temporarily relieve the pain.

APPARATUS FOR FORCIBLE EXTENSION.

Dr. Elliott exhibited an instrument which he had devised for forcible extension, especially for the reduction of the congenitally dislocated hip. It was light and inexpensive and consisted of a small rectangular frame about six inches wide and fifteen inches long. In the center of the long axis was an extension screw. To a cross-bar on this extension screw was attached preferably the ends of a skein of yarn which had previously been adjusted to the ankle of the patient. The frame could be affixed to any table or bed and the force employed, the patient being firmly held by an assistant, could be regulated at will and, if desired, measured in pounds. The instrument, besides being used for reduction of dislocation of the hip as described, could also be conveniently used in the forcible reduction of the spinal column in cases of angular curvature, the proper adjustments being easily made.

Current Literature.

HYGIENE AND THERAPEUTICS.

Mann, Frederick W.: The Patent on Antitoxin. (*The Medical Age.* 1898. No. xv.)

Professor Behring claims as his invention: 1. A process "of producing diphtheria antitoxin, which consists in inoculating horses or other animals capable of being infected with diphtheria with repeated doses of diphtheria poison or living diphtheria bacilli of gradually increasing quantity and strength so as to immunize them and form in the blood a counter-poison for destroying the poison secreted by said bacilli, drawing off the blood from said animals, separating the serum from the blood corpuscles, and concentrating the former for use substantially as set forth.

"2. As a new substance, diphtheria antitoxin, consisting of the concentrated serum of the blood of animals treated with diphtheria poison and having the characteristic of immunizing test animals against infection with diphtheria, and curing them when artificially infected with diphtheria, said serum containing a counter-poison having the property of destroying the poison secreted by the diphtheria bacilli substantially as set forth."

It is almost superfluous to point out to any well-informed reader that Behring's claim to have done this is as preposterous as it is unjust. The principles upon which immunization to diphtheria was finally achieved were of gradual growth, the outcome of researches by thousands of untiring workers. The foundation of the work was undoubtedly laid by Pasteur in his method of immunizing against chicken cholera and anthrax. So long ago as 1887 Sewall immunized pigeons against the poison of rattlesnakes. He says, with genuine modesty, his work was undertaken with the hope that it might form a worthy contribution to the theory of prophylaxis, and it was a most worthy contribution. In 1887 Roux and Chamberland immunized animals against malignant œdema and sterilized anthrax cultures. In 1890, the same year in which Behring and Kitasato published their results in immunizing animals against diphtheria and tetanus, Fraenkel published his results in diphtheria after treating animals by weakened germs and filtered cultures. In the clinical uses of the serum Aronson's name must not be forgotten. His serum was first used in the Children's Hospital at Berlin in 1894. The serum of Roux had been used in one of the hospitals of Paris a month earlier than Aronson's in Germany. Emerich and Aronson both dispute the priority of Behring, and the French Academy of Sciences awarded their prize for antitoxin jointly to Behring and Roux, a fact which very clearly denotes the difficulty of estimating priority of merit in a scientific struggle in which the numerous competitors were so equally distinguished.

The principle which lies at the foundation of the invention of diphtheria antitoxin, and that which underlies all serum therapeutics, is that the blood of immune animals can be used in the treatment of others. Behring did not discover this principle, and in its application he was undoubtedly anticipated by the Japanese workers. If to any single man must be ascribed the distinction of being the inventor and discoverer of the beneficent principle of immunization, the honor belongs to the immortal Pasteur.

The manufacture of antitoxin has been carried out for many years in England, France, Switzerland, Italy, Russia, and Japan, and in these countries no one has had the temerity to attempt to control exclusively its manufacture. In this country it is made by five Boards of Health and by several manufacturing firms. In this country alone has an attempt been made to monopolize its production, it being admitted that elsewhere the claims of any patentee are inadmissible.

Reinach: Subcutaneous Injection of Serum in the Summer Diarrhœa of Infancy. (*Archives für Kinderheilkunde.* B. xxiv., H. i., ii.)

The fifteen patients upon whom the observations were made ranged in age from fourteen days to nine months. All were certificially fed. All had been ill two to three days when the treatment was begun. As a result of the loss of a large amount of fluid in the discharge, all showed marked falling off in weight. Ten to twenty c.c.m. were used for a single injection. Reaction did not occur in any case. In two there was a slight rise in temperature, and one patient developed a measles-like eruption without fever fourteen days after the injection. Four children died, two with tubular pneumonia and two with follicular ulceration of the colon.

Helfman, Joseph: A Glorious Distinction Flung Away for a Paltry Mess of Pottage—Behring's Patent and Asserted Monopoly of Diphtheria Antitoxin. (*Bulletin of Pharmacy.* 1898. No. viii.)

It is a noble spirit which animates the code of medical ethics. Here is the only creed whose claims to professional salvation command recognition—a creed which enjoins both the manners of the gentleman and the generosity of the philanthropist—a creed which embodies the highest conception of professional dignity and honor—a creed which has been born of, and which has in turn begotten, all that is generous and worthy and inspiring in professional life—a creed which is alone capable of resisting the lowering, cheapening and degrading forces that threaten to transform medicine into a trade.

Acting in the spirit of this creed, medical investigators have rarely felt justified in withholding from the great body of their colleagues the fruits of their researches. As they have partaken freely of the common fund of knowledge formed from the contribution of their predecessors, so they have felt constrained to enrich this common fund with their own legacy to posterity. A magnificent heritage has thus accumulated; and every land cherishes with pride, with gratitude and with affectionate veneration its bright muster-roll of departed spirits who gave without stint the best treasures and the choicest fruits of their toil.

Happily, this high tradition is yet a potent force amongst American practitioners, hence great will be the shock, profound the regret, when it is learned that no less a man than Emil Behring has sought to create for himself and his commercial agents a monopoly of diphtheria antitoxin; that not content with the fame and glory of his researches, or with the credit justly attaching to his share in establishing serum-therapy, he made application in January, 1895, for a United States patent on diphtheria antitoxin; that this patent was *five times refused* on the most cogent and substantial grounds, and in simple justice to the long line of bacteriological investigators who had clearly contributed to the results which Behring sought to monopolize; that after the lapse of three years, and after five distinct refusals, a patent was granted in June, 1898, by the Board of Appeals in Washington on the sole and avowed consideration that Behring's work had helped to reduce the diphtheria mortality; and that now the manufacturers of the Behring serum, his assignees known as the *Höchst Farbwerke*, have served notice of their monoply on the leading American manufacturers, with menace of suit if the German monoply be not respected.

On the behavior of the *Farbwerke* (*vormals Meister Lucius & Brüning*) we have no comment to make; they have acted in accordance with their lights. They are a commercial house and pretend to no higher motives than those of the average business man. Patents on medicinal substances, monopolies, exploitation of the American public to the full extent permitted by our criminally indulgent laws—these things are mere matters of business in eyes so long accustomed to that ignoble scramble for patents and monopolies, which stains and besmirches the recent annals of German science. The German effect to despise the sordid motives and the frantic dollar-chase of the Americans; "Americanismus" is a German term of reproach; but in no land and in no degenerate age have scientific men been more prone than to-day in Germany to throw professional dignity and professional duty to the winds, joining in the wild pursuit of monopolies and dollars as frankly and cynically as any American "promotor." If we Americans have been the teachers, the Germans have proved apt pupils; and they are now abundantly qualified to instruct their preceptors.

But from this whole disgusting and paltry rapacity a few German scientists had thus far held aloof. Rudolph Virchow is one of them. Emil Behring *was* another. Until recently Behring belonged to that noble band of chosen spirits whose names are handed down from generation to generation as the benefactors of mankind. What is he to-day? With sorrow we answer: the cheap and mercenary monopolist who tarnishes for money the lustre of his scientific fame; the fit companion of those who originated antipyrin, phenacetine, salol—*and received their price;* the Esau of German science who flings away for a beggarly mess of pottage his claim to a glorious immortality, and an ethical standing which, though it cannot be weighed or measured or gauged, or expressed in dollars and cents, should be as precious to its possessor as a woman's chastity or a man's honor; nay, more—and mark this well—the greedy and unscrupulous appropriator of other men's researches; the spurious claimant of reward for work done in large measure by Pasteur, Roux, Sewall, Fraenkel, Foa, Bonome, Kitasato, Wernicke, Aronson, Hericourt, Richet, Emerich, Ogata, Jasuhara, Tizzoni, Cattani, Ehrlich, and many others.

But though Professor Behring has seen fit to descend to the level of monopolists and promoters he has reckoned without his host and he may yet vainly seek his reward. Not a court in the United States will uphold such a preposterous patent; the claims of his minions will be disputed and fought to the last trench; and in the sequel he may find that there is a limit both to the exploitation of American patent laws, and the appropriation of credit for other men's work.

Meantime, be it remembered to our shame as Americans, that in Germany the very claim for such a patent would be scouted and repelled. The laws of Germany and France withhold all patents on foods and medicines, save on processes of manufacture, and in this instance Behring could not possibly secure at home what he has been granted in the United States. In Germany he accepts the situation and makes the best of the existing competition; in America he would suppress all competition and remain undisputed master of the field. Is it not high time to bring some organized effort to bear on Congress for a change in the patent laws? Is it not a scandal and a shame that foreigners should enjoy in America monopolies and concessions which are denied them at home? Consider the oppressive extortion to which this has given rise. Remember phenacetine, sulphonal, antipyrin, salol—marketed here at prices outrageously excessive. Remember that not an ounce of these products may be legally purchased in Canada and imported into the United States *duty-paid*. Is there no limit to American patience? How long shall we continue to tolerate the foreigner's extortion—how long will he fatten on the monopolies which American laws create for him?

Zum Bune, J. P.: Lacto-Somatose in Rickets. (*Montasschrift für Practise Medic.* H. vii. 1898.)

This preparation has recently been introduced as an albuminous product consisting of the albumoses of milk, together with 5 per cent. of tannic acid in chemical combination. It appears as a brownish-yellow powder, odorless, and rapidly and completely soluble. If it is first stirred into a smooth paste with cold water it will at once dissolve on the addition of hot water. The solution thus prepared can be readily mixed with beef extract, milk, coffee, and numerous other fluids, and may be administered to the patient even without his knowledge, as it is almost tasteless.

The first experiments with this preparation were made in the medical clinic by Prof. Shultze, of Bonn. He prescribed the preparation in daily doses of three tablespoonsful in chronic affections of the digestive tract, especially in digestive disturbances due to atomy of the muscular coat of the stomach and the intestinal canal, such as occur in enteroptosis and anæmia.

The author has employed this preparation in several instances during convalescence from diseases of various kinds, and especially in the intestinal diseases of rachitic children. The dose in young children was one-half that given to adults; namely, one-half teaspoonful three times daily, and always administered in milk. Under this treatment the bowels soon became regular, and it is the author's impression that lacto-somatose exerts a very favorable influence upon the subsequent course of the disease. On the ground of numerous observations, he believes that he is warranted in recommending it as a readily digestible and assimiable nutrient in conditions of malnutrition and exhaustions of all kinds, as it fulfils the requisite of Leyden, of supplying the patient with a sufficiency of food in small quantity.

Thyroid Gland Treatment. (*Edinburgh Medical Journal.* 1898. Vol. xlv., No. 515).

In a previous issue of this journal attention was drawn to Hermann Munk's views as to the current clinical and physiological teaching in regard to the thyroid gland. Winkler (*Centralbl. f. Therap.*, April, 1898), admits that previous experimenters on the subject may have come to too hasty conclusions, but holds that, in face of the therapeutical results (obtained otherwise than in myxœdema, where its value is unquestionable), judgment must be held over. Wormser (*Arch. f. Physiol.*, Leipzig, Bd. lxvii), as a result of numerous experiments on animals, has come to the following conclusions:—Iodothyrin, obtained from the thyroid glands of pigs and sheep by different methods, is not capable of averting tetany and death in dogs from which the thyroid gland has been removed. Nor does the addition to the iodothyrin of the albuminous substances of the gland have any better effect. The remaining substances (extractives, etc.) were also inactive. Iodides and iodine-containing substances also showed themselves powerless in this respect. Dried thymus or suprarenal gland had no effect.

Wormser, however, in contradiction to Munk, found that the whole gland dried prevents the symptoms which usually arise after thyroidectomy.

A considerable number of cases have now occurred in which glycosuria arises under the administration of thyroid preparations. Von Noorden has met with it in the five cases out of seventeen treated for corpulence, and it has been reported in cases of psoriasis, myxœdema, and even in one case where it was being taken experimentally. Its occurrence in animals fed on thyroid glands is not uncommon.

On the other hand, Branthomme (*Rev. de Méd.*, Paris, December, 1897), reports a case of glycosuria cured by its use, in a man æt. 52, who had had sugar in his urine for eleven years. Before getting thyroid tablets he was passing 6 litres of urine per day, with 228 grms. sugar and 1 grm. albumin. In nine days there was very distinct improvement; two months later the daily urine had fallen to 1½ litre, the sugar to 8.7 grms., and the albumin to 0.09 grm.; and eight months later the sugar had entirely disappeared, and there was a mere trace of albumin. In reference to this case, Lépine draws attention to the statement of d'Arsonval and Charrin, that electric currants of high tension increase tissue metabolism, and also improve certain cases of diabetes, but on the other hand, are capable of inducing glycosuria in the healthy. Their action in this respect seems to have certain resemblances to that of thyroid preparations. In a case of glycosuria, where the patient was corpulent, Lépine found that thyroid treatment first increased the sugar, but after a few days diminished it considerably, and at the same time the general condition improved.

SURGERY.

Martin, Edward: A Statistical Study of Intussusception in Children, Based on Unreported Cases; Together with the Report of a Successful Operative Case. (*Therapeutic Gazette.* 1898. Vol. xxii., No. 6.)

The author believes that cases of intussusception are best classified under Raffinesque's system as ultra-acute, death taking place in the first twenty-four hours; acute, terminating between the first and seventh day; and subacute, lasting two weeks or upward. Invagination may be enteric, involving the small intestine only, or ileo-cæcal, the ileum and cæcum, together with the valve, being turned into the colon; ileo-colic, the ileum prolapsing through the ileo-cæcal valve, the latter retaining its proper position till secondary changes—it, together with the cæcum, is more or less displaced; colic, the invagination involving the colon only; and rectal, the seat of trouble being situated entirely within the rectum. Usually the upper segment of gut is received into the lower, but in Leichtenstern's 593 cases the reverse of this condition obtained in 1.5 per cent.

A retrograde intussusception secondary to the descending invagination is not so infrequent. In these cases the intussusceptum is surrounded by five layers of gut. This is probably due to a folding upon itself of the loose intestines and is said to occur only in the colon. It should be remembered that the intussusception may be double or triple.

Of many predisposing causes of intussusception, intestinal trauma (263 cases out of 593), polyp, especially that incident to a sudden jar or jolt, gastro-enteritis, and the straining incident to constipation, should take first rank.

The direct cause of chief importance is an irregularity in the nervous mechanism of the intestines which allows of a sudden spasmodic contraction of a portion of the bowel, while its adjoining conjunction may be entirely relaxed. This will apparently account for the intussusception of agony not rarely encountered in the course of *post-mortem* examination, and developed probably either during or immediately after the death struggle. These invaginations are often multiple, are limited in extent, and show no inflammatory changes.

The fact that obstructive invagination occurs in children, is associated with colic, is observed after abdominal injuries, and sometimes follows gastro-enteritis or typhoid fever, would all strongly suggest as probable causative factors disordered innervation.

After a very elaborate study of the subject the author believes that the conclusions which seem justifiable from a study of infantile intussusception are:

1. The affection is a rare one in any one locality or in any individual experience. The general impression among medical men to the effect that it is common has not the support of either hospital records, vital statistics, or personal inquiry.

2. Gastro-enteritis is a distinct predisposing factor.

3. The diagnosis of infantile intussusception from severe entero-colitis in the absence of tumor may be quite impossible. Fortunately tumor is present in over eighty per cent. of cases. Often it has not been found because search has not been made for it. Sudden and violent onset, frequent small blood-stained mucous passages, and the rapid minimizing of the quantity of feces passed, would suggest intussusception. Under such circumstances palpation should be practised, one finger being passed into the rectum, the other fingers of the other hand being applied to the abdominal surface. When there is reasonable doubt the child should be relaxed by ether before such examination is made. The tumor is not necessarily on the left side, being found in a small percentage of cases to the right.

4. The first attempt at reduction should be thorough and final. This is most likely to be successful if practised upon the thoroughly anesthetized child. The method of choice is the slow injection of normal saline solution by gravity at a temperature of of about 102° F. and under a pressure of at first four feet—not greater than eight feet after ten to fifteen minutes. Inversion and gentle massage aid in accomplishing reduction.

5. Reduction by injection should not be attempted in hyperacute cases which have lasted more than twenty-four hours, nor in acute cases which have lasted twice this time. Immediate operation is safer for such cases.

6. Reduction by injection having failed, there should be immediate recourse to celiotomy and direct disinvagination, or if this procedure is impossible, ligation and resection of the adherent and sloughing mass practised through a small incision through the intussuscipiens, and union of the divided bowel as in the Maunsell method. The portion of the gut cut away may be delivered through the anus.

Walker, George: Sarcoma of the Kidney in Children. (*Annals of Surgery*. No. xi. 1897.)

The author closes a very extended paper on this subject with the following summary:

Malignant tumors of the kidney in childhood occur most frequently, either congenitally or within the first few years of life.

All of them are probably embryonic in origin, as evidenced by the fact that they contain distinctly embryonic tissue.

While not being pure sarcoma, they resemble it in their most prominent features.

They are very rapid in growth and are not attended with any distinctive systemic symptoms in the first half of their course; in the latter they are accompanied by rapid and great constitutional disturbance.

They occur most frequently between one and two years of age.

The left kidney is more often affected than the right.

The disease seems to occur with about equal frequency in males and females.

The average duration of life without operation is 8.08 months; with operation it is 16.77 months.

Operative treatment, to be successful, should be instituted as early as possible; but even in the late cases an exploration should be made.

Operation is followed by an immediate mortality of 38.25 per cent.; an ultimate one somewhere between 74.32 and 94.53 per cent.; 5.47 per cent. of cures, and a lengthening of the life period by 8.08 months.

In conclusion, although the cures are very few, still in consideration of the invariably fatal termination of this malady without interference, Walker unhesitatingly advises operation, for it offers the only hope; and at the worst it means only an accelerated death.

MEDICINE.

Eshner, Augustus A.: Hysteria in Early Life. (*Atlantic Medical Weekly.* 1898. Vol. ix. No. ~~288~~.) 17

Through the labors of the French school of neurologists in particular, hysteria has been given the recognition it deserves, as a distinct, fixed clinical entity, with a train of symptoms as characteristic as those of any of the acute specific infections or intoxications. That the disorder has a pathology of its own the results of future investigation will probably demonstrate, but as yet we need more knowledge, especially in the domain of physiologic and pathologic chemistry, before we may hope for a solution of this aspect of the problem. From both inference and analogy it seems not unreasonable to believe that hysteria depends essentially upon metabolic or nutritional changes in the cellular elements of the central nervous system, in consequence of which, there may result alterations in function and changes in relation, whence arise the varied and protean symptoms of the developed disease. It may not be extravagant to hope that future refinement in staining methods, in which there has been so remarkable an advance in the past decade, may make possible the detection of changes in nerve-cells that at present elude closest scrutiny by existing means of investigation.

Though we retain the name, which perpetuates the original erroneous conception of its pathology, we have learned that hysteria may exist not only in women deprived of their uteri, but even in men as well. Hysteria respects neither sex nor age, although by far more common in females than in males, and comparatively rare in early and in late life. The explanations of these differences must be looked for in the varying susceptibility and receptivity of the nervous system with regard to those influences to which in a general way we have learned to attribute etiologic activity. Hysteria is most common in women at the age of twenty years. Briquet found one-fifth of the cases in the female sex to occur before puberty, rather more than one-third between the ages of fifteen and twenty. Batault found the disease most frequent in men between the ages of ten and twenty. Mills reports a case of catalepsy or automatism in a girl two years old, and refers to a similar case reported by Jacobi in a child three years old. He cites also a case of hysterical paralysis in a girl eighteen months old, reported by Gillette. The evidence goes to show that hysteria, while not so uncommon in childhood as it appears to be, is yet sufficiently so to warrant the report of a small group of cases illustrating some of the phases of the disease as it appears in early life, as well as some of the difficulties and doubts that at times attend its recognition. The causes, symptoms, course of treatment of hysteria are much the same in children as in adults, except in so far as these are influenced by modifications dependent upon differences in mental and physical growth and development.

The author reports in detail seven cases in which he has endeavored to supplement what others have already done in directing general professional attention to the liability of children to suffer from hysteria. He particularly emphasizes the importance of its early recognition and intelligent treatment.

Riether: Infantile Diphtheria and Preventive Inoculation. (*Wien. Klin. Woch.*, 1897, No. 29. *British Medical Journal.* 1898. No. 1932.)

The author replies to the numerous papers which have recently appeared on the immunity of sucklings to diphtheria by quoting a series of thirty-one cases occurring within two years in a foundling hospital with which he is connected; of these only seven recovered. The disease is hence not frequent, but by no means so exceptionally rare as has been asserted. It is practically almost always primarily nasal, the acid contents of the mouths of the sucklings preventing, as Monti has shown, the growth of the Klebs-Loeffler bacillus. A case which was at first regarded as primary oral diphtheria was proved bacteriologically to be streptococcal stomatitis; the child got well. One of the other cases was exceptional in that the primary affection was of the unhealed umbilicus, the fauces being attacked secondarily. The disease almost invariably attacked weak and reduced children. It being found impossible to stamp the diphtheria out by room and house disinfection, it was decided to give all children a prophylactic inoculation of one hundred units of Paltaui's antitoxin. Of 1,450 children thus treated, although in other respects no further safeguard against diphtheria was used, only two contracted the disease. Each of these was extremely weakly, and in each the onset dated from seven weeks after the inoculation. In 1897 no case of diphtheria had developed in the hospital, the only ones under treatment having been brought in ill. There was evidence also that this prophylaxis was diminishing the spread of diphtheria outside the instituion as well. The children varied in age from a few hours to two or three months; 240 died of various causes unconnected with the inoculation, and in no one of them was any affection of the kidneys detected. In two there were minute abscesses, the size of a pea, at the site of injection, and in a few a mild erythema developed at the same spot. An urticarial eruption which also appeared in rare cases could not certainly be attributed to the antitoxin. The author thus considers himself justified in stating that antidiphtheria serum can be injected without danger beneath the skin of infants in the first days or weeks of life, and that 100 units serve as a protection against the disease for five or six weeks. It may be added that this is the largest series of prophylactic inoculations against diphtheria hitherto recorded.

The Development of Serum Therapy.

By Charles T. McClintock, M.D.

Natural immunity, the fact that certain individuals or races are less susceptible than others to certain diseases, was noted by the earliest writers on medicine.

So it has long been known that in some of the infectious diseases one attack of the disease confers more or less immunity against subsequent attacks—an acquired immunity.

Artificially acquired immunity dates from the discovery of Jenner (1766) that the lymph taken from the vesicles of cow-pox would protect the vaccinated individual from small pox.

Pasteur in 1880 began the publication of a series of brilliant experiments on the production of artificial immunity. He found that if his microbes were weakened by age, or heat, or exposure to the atmosphere, animals inoculated with these weakened cultures would have a mild attack of the disease, and were thereafter immune to the disease in question, even after inoculation with the most virulent cultures.

He perfected his methods of attenuating his microbes and succeeded in immunizing animals against several of the infectious diseases.

Pasteur clearly saw the immense significance of the work, and made the prediction: "It is possible for man to eradicate every contagious disease from off the face of the earth."

The epoch-making discoveries of Pasteur attracted many workers to this field, and justified the statement of one of his pupils: "There are two periods in the history of medicine, the one before, the other after, Pasteur."

Pasteur worked with the germs themselves. The next discovery of importance was that the toxic products of the germs, the filtered cultures from which all the germs were removed, could produce immunity. This discovery was made piecemeal. The first satisfactory demonstration of it was given by Salmon and Smith in 1886. These workers succeeded in immunizing pigeons against the germs of hog cholera by previous injections of the sterilized cultures obtained from these germs.

Similar results were reported by Roux in 1888 with anthrax and symptomatic anthrax. The first published results on immunization in diphtheria were those of Löeffler. He showed that in May, 1888, he had inoculated a guinea pig with diphtheria. The animal sickened, but recovered after three weeks. It was then inoculated a number of times with virulent cultures, but showed itself entirely immune.

C. Fraenkel (*Berlin Klin. Woch.*, Dec. 3, 1890) published his results on the immunization of animals against diphtheria. He showed that there were several ways in which this could be accomplished.

On the following day (*Deutsch. Med. Woch.*, Dec. 4, 1890) Behring and Kitasato published their results on the immunization against diphtheria and tetanus.

They succeeded in immunizing animals against tetanus and diphtheria by the injection of the filtered cultures from these germs. In 1891 the Klemperer Brothers reported similar results with pneumonia. Meantime a number of investigators in various parts of the world were busy with another part of the problem.

"As early as 1872, Lewis and Cunningham demonstrated the fact that bacteria injected into the circulation rapidly disappear.

"In 1874, Traube and Gschiedlen found that arterial blood taken under antiseptic precautions from a rabbit into the jugular vein of which 1½ cc. of a fluid rich in putrefactive germs had been injected forty-eight hours previously, failed to undergo decomposition for months. These investigators attributed the germicidal properties of the blood to its ozonized oxygen. Similar results were obtained by Fodor and by Wysokowicz. The latter accounted for the disappearance of the germs, not by supposing that they were destroyed by the blood, but that they found lodgment in the capillaries.

"The first experiments made with the extra-vascular blood were conducted by Grohmann under the direction of A. Schmidt in his researches upon the cause of coagulation. It was found that anthrax bacilli, after being kept in plasma, were less virulent, as was demonstrated by their effect upon rabbits. Grohmann supposed that in some way the bacteria were influenced by the process of coagulation.

"In 1877, Fodor made a second contribution to this subject and in this he combated the retention theory of Wysokowicz. One minute after the injection of 1 cc. of anthrax culture into the jugular vein in eight samples of blood, Fodor found only one colony of the bacillus. Then he took the blood from the heart with a sterilized pipette and added anthrax bacilli to it. This was kept at 38° C., and plates made from time to time showed a rapid diminution in the number of germs; after a time, when the blood had lost its germicidal properties, the number of germs began to increase.

"In 1888, Nuttall showed that defibrinated blood had this germicidal power. Since then Nissen, Behring, Buchner, Christmas, Hankin, Bitter, and others have worked on this question. All of these observers find that the blood, within or without the body, has germicidal powers.

"These experiments demonstrated the fact that the body had the power to kill at least some bacteria, but gave us little if any insight into how it was done."

IMMUNITY TO POISONS.

That certain animals possessed more or less immunity to certain poisons was a matter of common knowledge. The carnivorous animals, as the wolf and the vulture, thriving on putrid, toxic flesh. So it was known that many snakes and a few mammals, as the hedgehog, swine and the ichneumon, were very resistant to snake poison.

In 1887, Sewall reported that he had immunized pigeons against the poison of the rattlesnake. He says: "This work was undertaken with the hope that it might form a worthy contribution to the theory of prophylaxis. I have assumed an analogy between the venom of poisonous serpents and the ptomaines produced under the influence of bacterial organism." These experiments of Sewall's are in so far as we know the first attempt to immunize animals against poison.

An all important discovery was that the immunity of one animal could be borrowed and transferred to another animal. The idea of the transfusion of the blood of healthy individuals or animals into persons weakened by disease or age is centuries old. King, physician to King Charles, in 1665 practised transfusion from the veins of one person into that of another. Denis in France, who died in 1704, transfused the blood of a lamb into a weak patient. This operation was in common use until within the last few years. The first record we find of the use of the blood of an immunized animal for the protection of other animals is in 1887. Foa and Bonome published their results. They rendered animals immune to the proteus vulgaris, the diplococcus of pneumonia, and the bacillus of chicken cholera, by treating them with sterilized cultures of the germs, and discovered that the blood drawn from the heart, or an infusion of the tissues of rabbits dead from proteus infection, injected intravenously into another rabbit, made this animal immune to virulent cultures of the proteus germs.

Hericourt and Richet, 1888, report treating dogs with tubercle germs, and then transferring the blood from these dogs into other animals to cure and prevent the disease.

So they injected cultures of staphylococcus pyosepticus into dogs, taking the blood from these dogs and injecting it into rabbits they found that the latter animals would then resist infection with the staphylococcus.

In 1890 Ogata and Jasuhara, working in the Hygienic Institute of Tokio, showed that mice inoculated with a lethal dose of anthrax germs could be saved if at the same time blood from an immune animal was injected subcutaneously.

Later in the year (1890) Behring and Kitasato showed "that the blood of an animal which has acquired an immunity against tetanus or diphtheria, when added to a virulent culture of one or the other of these bacilli, neutralizes the pathogenic power of such cultures, as shown by inoculation into susceptible animals. And also that cultures from which the bacilli have been removed by filtration, and which kill susceptible animals in very small amounts, have their toxic potency destroyed by adding to them the blood of an immune animal.

In the experiments cited of Fraenkel, Behring and Kitasato, it was clearly shown that the blood of immunized animals when injected into susceptible animals protected them from subsequent infection from virulent germs. Behring and Kitasato went further and demonstrated that the immunized blood would protect animals not only against living germs but also against filtered cultures or toxins, which were very fatal to untreated animals. They showed that their protective inoculations produced an immunity which in mice lasted for forty or fifty days, after which it was gradually lost.

The next step forward was made by Kitasato in 1891, in his further research on tetanus. He discovered that the blood serum of animals immunized to tetanus had not only prophylactic but also curative properties. He demonstrated that mice inoculated with tetanus germs could be cured by an injection of serum, even *after* the tetanic symptoms had appeared.

This, the last in the long list of discoveries made by many workers along this line, made serum therapy possible. From this time on the question was one of perfection of methods. The best animals to use, methods for so increasing the immunizing power of the blood that a small quantity would suffice for curative purposes, methods for determining the strength of the immunizing serum, how to preserve and administer it.

Many investigators assisted in this work. Ehrlich in his work on the vegetable poisons, Abrin and Ricin, showed that by beginning with very small doses and gradually increasing them, the immunizing power of the blood could be increased almost indefinitely. His treated animals would withstand hundreds of times the fatal dose of the poison. Behring contributed largely to the work, and devised a method for measuring the immunizing strength of the antitoxic serum.

Roux and Yersin showed that different cultures of diphtheria germs varied enormously in virulence.

Aronson and others devised means for increasing the virulence and toxicity of the germs. Aronson, after experimenting with many species of animals, could show that the horse was the most suitable for the production of antitoxic serum.

The possibilities of the serum therapy was apparent to every worker. Roux in 1894, when announcing the successful results of the treatment of children with his antitoxin, says: "Since the year 1891 we have carried on experiments on the treatment of diphtheria with antitoxic serum."

Behring and Wernicke (in 1892) published a paper upon the immunizing and healing of experimental animals with diphtheria. They produced an antitoxin and used this in treating guinea pigs, both for immunizing these animals and for curing them after they have been infected with the diphtheria germ, or with its poison. They say the aim of their experiments "is to produce the material in such quantity and potency that diphtheria in human beings can be treated therewith." Behring, in his "History of Diphtheria," 1893, discussed the possibility of treating children with diphtheria antitoxin, pointing out that it is only a question of making the material more potent until the work can be begun. He shows that of the material produced up to that time about 50 cc. would have to be given to a child of 20 kilogramme weight, supposing that diphtheria in children is of about the same intensity as in guinea pigs.

In November, 1892, in the Berlin Medical Society, Aronson reported on the immunization of human beings against diphtheria, and in January, 1893, he further reported that he had succeeded for the first time in so increasing the immunizing power of the serum that protective inoculations of children exposed to diphtheria was possible in practice.

In March, 1894, Aronson's serum began to be used in the Children's Hospital in Berlin. In February, 1894, Roux's serum began to be used in one of the hospitals of Paris, his preliminary report on the clinical results being made in May, 1894.

In September, 1894, in Buda Pesth, at the International Congress of Hygiene, papers were read by Behring and by Roux on the treatment of human diphtheria with antitoxin. These papers with their clinical reports of the value of the treatment at once aroused world-wide attention.

As so often happens the persons who presented the results were popularly supposed to be the sole discoverers. On the contrary, antitoxin was not the discovery of any one man or set of men, but the cumulative result of the work of many investigators. The papers cited herein are but a few of the hundreds that bear on this question.

A Chemical and Bacteriological Study of Hydrocephalic Fluid.—Conicetti, (*Wiener klinische Wochenschrift,* 1897, No. 42, S. 934), of Rome, finds that hydrocephalic fluid is sterile and faintly alkaline and of a specific gravity varying from 1005 to 1010, having no toxic action upon animals. The proportion of albumin remains constant (about 0.25 per cent.), despite repeated punctures. Glucose has never been found, nor has peptone, urea, mercury, or potassium iodide. Salts are present in small quantity. It therefore has the same chemical composition as physiological cerebro-spinal fluid, and consequently is not an exudate or transudate, but a true secretion. The author has also studied, bacteriologically, the hydrocephalic fluid obtained in pathological conditions in which streptococci, staphylococci aurei et albi, pneumococci, and bacteria coli have been found. A series of observations has shown that their growth is checked, and that upon staphylococci an agglutinative effect is produced. The movements of the bacterium coli are rendered more sluggish. With inoculated animals he found that death occurred less quickly than in control-animals. At autopsy were found only slight superficial anatomico-pathological lesions, and often no changes at all were present.—*American Journal of the Medical Sciences.*

ARCHIVES OF PEDIATRICS.

VOL. XV.] OCTOBER, 1898. [NO. 10.

Original Communications.

THE ENANTHEM OF GERMAN MEASLES.*

BY F. FORCHHEIMER, M.D.,

Professor of the Practice of Medicine and of Pediatrics, Medical College of Ohio, Cincinnati.

There is a certain number of excellent observers who still express doubt in regard to the nosological position of rubella; Henoch, the Vienna school of dermatologists (Hebra and Kaposi), even some of our own members (Townshend and others, personal communications) look upon rubella as either a diminutive form of scarlatina or of measles, or as a resultant manifestation of a combination of both poisons.

To those who accept rubella as an independent morbid entity, the evidences have been sufficiently weighty to permit them to formulate their conclusions; additional evidence, however, will not be unwelcome, and not the least important evidence would be the detection of a characteristic enanthem in this disease. The study of the enanthems in the acute exanthematous diseases, has assumed formidable proportions within the last ten years.

In the observations of skin manifestations, twenty-five years ago, we were all so dominated by the overwhelming, masterful descriptions of Hebra and his followers, and by the theorem that, in the acute exanthemata, the same lesion is always produced by the same poison, that the manifestations upon mucous membranes were treated in a decidedly off-handed way.

It was only late in the seventies that the Vienna school of children's physicians began, and, it may be added, completed their fight against the dermatologists in connection with the establishment of varicella as an independent morbid entity, and from this time on, we have began to look upon the eruptive fevers in a broader way.

---

* Read before the American Pediatric Society, Cincinnati, June 1, 1898.

As a result, the other symptoms of the acute enanthemata have received more attention, so that at the present time, the enanthems can be utilized for differential diagnostic purposes, and, as a corollary, decided help to the location of these individual diseases in the nosological table is added.

This is true for measles, scarlatina, small-pox and varicella. For rubella, as will be seen, much confusion exists, and while various observers have seen the enanthem, I have failed to find a description of its peculiarities and its life course in literature. Indeed in the vast majority of descriptions it is supposed that rubella is characterized by the absence of an enanthem. One of the first authors who has studied the question (*Schwartz, Uber ein characteristisches. Differential merkmalzwischen Morbilli und Roseola, Wiener Med. Presse*, 1868) finds isolated reddish spots on the hard and soft palate and uvula in measles, but not in rubella. Thomas (*Beobrachtungen über Rötheln, Jahrbuch für Kinderheilkunde*, ii., N. F., 1869) promptly disavows this, and makes the statement that there is no specificity of the enanthem in either disease; that, therefore, it cannot be utilized for purposes of differentiation, and that any difference between the two is simply that of intensity, in that it is better developed in measles than in rubella.

In a subsequent communication, Thomas (*Neue Erfahrungen über Rötheln Jahrbuch für Kinderheilkunde*, N. F., v., 1872, page 346) again comes back to the question of the enanthem and the appearance upon the mucous membranes in rubella, and says "injection of the mucous membrane of the palate was never absent, the pharynx was injected, as a rule; sometimes the tonsils were slightly swollen and then there were slight and transitory disturbances of deglutition.

"The injection, now as before, did not seem to be macular. I must, therefore, according to my recent experience, designate the term enanthem (*Schleimhant exanthem*) as unsuitable, in so far as conveying the meaning of a something like the exanthem. Moreover the affection of the mucous membrane is streaked and spotted, individual injected portions being separated by others less injected or normal.

"The appearances upon the mucous membrane do not materially differ from those in measles and do not, then, admit of differentiation, as has been claimed. The injection begins with the first development of the eruption and disappears rapidly when it fades."

Emminghaus (*Ueber Rubellen Yahrbuch für Kinderheilkunde*, N. F., iv., 1871) has evidently seen an enanthem, in that he says: "In a few cases there was observed upon the palate a similar exanthem (*i.e.*, similar to the one upon the skin), which was always circumscribed and strictly limited." Dunlap (*Lancet*, ii., page 464, 1871) makes a most concise and explicit statement, as follows: "I then found that in the great majority of cases the velum, the uvula, and the fauces generally, were covered with a deep red, punctate eruption."

Nymaan (*Zur Aufklärung de Frage über die Selbständigheit der Rubellen, Oest. Jahrbuch für Kinderheilkunde*, iv., page 125, 1873) describes a condition of small punctated redness upon the pharynx, the hard and soft palate as the enanthem; a condition that is found in various exanthemata, in ordinary catarrhal stomatitis, even in apparently healthy mouths. As Nymaan has been quoted quite frequently, it may be well to state that he, at least, has not seen an enanthem.

Gerhart (*Lehrbuch der Kinderkrankheiten*, 1881, page 82) describes the enanthem as follows: "The mucosa of the pharynx presents the same spotted-hyperæmic, hemorrhagic punctated redness as in measles," a condition which, according to the view to be presented, is just the one that does not exist in rubella.

Kassowitz (*Tran. International Congress*, iv., page 13, 1881) is also one of the few who has seen the enanthem, in that he says that "in a small number of cases he has observed isolated red spots upon the mucous membrane of the hard palate during the first day of the disease." J. Lewis Smith, at the same meeting, stated that "catarrhal hyperæmia is also seen in spots or patches, more or less diffused upon the buccal surface."

Rehn (*Eine Rubeolen Epidemie, Jahrbuch für Kinderheilkunde*, xxix., N. F., page 282, 1889) has also seen something which he describes, occurring in nearly all cases as "the granular swelling of the glandular and speckled form."

Picot (*Jaccond's Dict. de Medéciné*, xxxi., page 774) describes the enanthem as follows: "It may appear upon the velum, the palate, similar to that of measles; we have seen it once, but have been able to verify its absence in other cases."

We now come to those excellent and exhaustive papers on the subject of rubella, written by J. P. Crozer Griffith (*The Medical Record*, 1887), J. E. Atkinson (*American Journal of Med. Sciences*, 1887), and W. A. Edwards (*Keating's Cyclopædia of* *the Diseases of Children,* Vol. i., page 695). Griffith has seen one phase of the enanthem in that he mentions, in a few instances, "an eruption of small, yellowish-red or brownish-red spots of pin-head size, was visible over the soft palate and uvula and the inner surface of the cheeks."

Atkinson, in discussing Schwartz (referred to before), says: "This undoubtedly holds for measles, but it is valueless for diagnosis, for the throat eruption of rötheln often exactly resembles that of measles. It is more often diffuse than macular." Edwards makes the statement that he has "also found in some cases an eruption scattered over the throat; this has been noted by several other observers, and we may note an eruption in the throat preceding the cutaneous eruption." Barthez and Sanné (*Traite clinique et pratique des Maladies des Enfants,* iii., page 68, 1891) have noted a little palative redness and some laryngeal phenomena "seeming to indicate an enanthem." Filatowtil (*Vorlesungen über Acute Infections, Krankheiten im Kindesalter* translated from the Russian by Polonsky, viii.-ix, page 424, 1896) has no doubt "that the eruption is met with upon the soft palate, indeed, upon all the visible mucous membranes; here also occasionally in the form of punctated hemorrhages, although many authors deny this."

After the review of the literature, it will be seen that no conclusion can be drawn as to an enanthem in rubella, and the whole question is dismissed in a most characteristic way by Jürgensen (*Northnagel's specielle Pathologie u. Therapie* Vol. iv., iii., ii., page 97, 1896) in the following sentence: "An enanthem may be present—it may also be absent," to which might be added this: an enanthem may be characteristic—it may also be not characteristic.

On account of the fact that the majority of observers either does not mention an enanthem, or confuses it with that of measles, and, furthermore, because of the confusion that exists in the description as it is given in those authors mentioning an enanthem, I decided to study this question upon the first available opportunity. This occurred last winter in a wide-spread epidemic of rubella, which occurred in Cincinnati.

It is unnecessary for my present purpose to describe this epidemic, except in so far as to state that it was characterized by the presence of all those symptoms that can be considered classic by the authors; that it was accompanied, in my own experience, by no mortality; that in only one case did I see a complication (nephritis), and that I should call it rubella morbillosa. In order to afford me further evidence that the epidemic was one of rubella, we are now (May, 1898) having an epidemic of genuine measles, and up to the present time, I have seen seven children attacked by the latter, who, two or three months before, have had rubella.

In the first case of rubella which I examined, I was completely foiled as to the detection of an enanthem and could discover nothing more than has been described by the authors which, for the most part, I have always considered as neither conclusive nor distinctive.

It was not until one of my own children was attacked by the disease, that I was enabled to see an enanthem, to study it and, at the same time, to offer an explanation for the fact that it had not been described more accurately before. After this there was no difficulty in detecting this enanthem in all cases, provided the conditions were favorable. The first child, a boy of eleven years of age, went to bed feeling perfectly well; in the morning he took very little breakfast, refused to play, preferring to lie upon the sofa, had a slight elevation of temperature, complained of a little of sore throat and said he was dizzy. Upon an examination, the tonsils were found slightly reddened, and the glands at the angle of the jaw decidedly enlarged.

As the boy is subject to attacks of angina follicularis, it was supposed that he was coming down with this trouble, and, in the course of my morning rounds, two hours after the first inspection, I stepped in to see him again. I then noticed that he had a rash upon the lower part of his face which, to me, was characteristic of rubella. Upon examining his mouth, I found a macular, distinctly rose-red eruption upon the velum of the palate, the uvula, extending to but not on to the hard palate. These spots were arranged irregularly, not crescentically; were the size of large pin-heads, were very little elevated above the level of the mucous membrane, and did not seem to produce any reaction upon it.

Six hours after this, the enanthem had become decidedly paler, the infiltration very much less, and by the next morning it had disappeared.

The exanthem by this time had developed in its natural way, and the case ran its course as an ordinary one of German measles. After having learned the lesson that the enanthem appears simultaneously with the exanthem, I took occasion to study it in subsequent cases—twenty-two in all, in which the time factor was favorable.

It will be necessary first to dispose of the buccal appearances in rubella. They are seen in the mouth as catarrhal stomatitis, streaking and spotted appearances mentioned by authors referred to before; upon the pillars of the fauces, both anterior and posterior, in the form of injection, or more decided hyperæmia; upon the tonsils, from an ordinary catarrhal angina, with swelling to a streptococcus amygdalitis (there is no reason why true Löeffler diphtheria should not develop, but I have not seen it); upon the posterior wall of the pharynx, in the form of acute catarrhal swelling, with hypersecretion, or any other process that may be going on in the mouth at the same time.

As the result of my previous, as well as my present, investigations, I do not hesitate to pronounce all these manifestations as due to secondary infection and as absolutely irrelevant as to the poison of rubella, except in that the latter acts as a predisposing factor for the development of other morbific agents.

I do this the more positively as I have seen the whole specific process run its course upon exceptionally pale mucous membranes without there being any secondary reaction—indeed, it is in these that the enanthem can be seen to its best advantage.

The results of my studies, which I beg to present to you, are as follows: Because there is practically no period of invasion in rubella, the enanthem appears at the same time as the exanthem. In no case have I seen the enanthem when there was not present a suggestion of the enanthem. It may be that further study in other epidemics may lead to different observations in this as in all of the other points I shall make, for undoubtedly epidemics of rubella differ very much, possibly more than any of the other acute exanthematous diseases, in their manifestations.

The enanthem is very short-lived; it fades away within the first twenty-four hours, and then come certain results of involution, not present in the majority of the cases. It is localized upon the uvula and soft palate and rarely invades the hard palate; I have never seen it extend to any other part of the mouth.

It is the same eruption that is found upon the skin, characterized then by its size of efflorescence, its arrangement, the absence of great infiltration and, above all, by its color, this being a pure pinky rose-red, almost exactly the same as the roseola of typhoid fever.

During the process of involution there are sometimes left pigmented deposits, usually of a yellowish, or yellowish-brown color, either in the form of spots or streaks.

The claim that this enanthem is distinctive can be defended by comparison with the enanthem of those two diseases with which rubella is confounded. A glance at these will suffice to establish this proposition. In scarlatina the enanthem appears from twelve to twenty-four hours before the eruption; it appears on the pillars of the fauces in the form of the characteristic puncta, then rapidly spreads over the mouth in the form of a scarlet red coalescing eruption, which finally ends in desquamation, producing the strawberry tongue, and lasting well into the second week of the disease.

In measles the enanthem begins upon the soft palate from thirty-six to forty-eight hours before the exanthem, in the form of purplish or bluish papules, arranged crescentically, extends over the cheeks, accompanied by the blue tongue; it is at its maximum with the beginning of the eruption and may take as long as three or four days to disappear.

It will be seen, therefore, that in all respects does the enanthem of rubella differ from that of scarlatina and measles, and when seen can be utilized with certainty for differential diagnostic purposes.

It is not within the scope of this paper to discuss the fact whether an enanthem can or cannot be observed in all cases of the acute enanthemata, and, in conclusion, I wish again to call attention to the statement made before, that these studies were made in one epidemic only and their verification must rest with the study of other epidemics before they can be accepted as belonging to all cases of rubella, under all circumstances.

DISCUSSION.

DR. J. P. CROZER GRIFFITH.—Dr. Forchheimer has mentioned two facts which help to explain something of the differences in the descriptions of writers who have referred to the occurrence of this enanthem. As he says, truly the majority of writers do not mention it at all. I have heard physicians make the statement that a differential diagnosis between rubeola and rubella may be made by the fact that rubella does not have any eruption in the throat. This of course we know not to be true. One of the two facts mentioned by Dr. Forchheimer, to which I would refer, is the multiform character of the cutaneous eruption. Certainly there is no one of the exanthemata of which this characteristic is truer. It is very likely the case that this applies also to the eruption in the throat. One author may describe it in one way and others in other ways, and all be right. The other fact to which he refers, and which I would mention, is the fleeting character of the rash on the skin. There is no disease I suppose which has a rash of a more transitory nature than rubella, at least in many instances. I have often been struck by the wave-like manner in which it spreads over the body, disappearing in one place before it has fully appeared in another. One may, it is true, often find patients with a rash which seems to be well developed all over at one time, and which is quite persistent; but certainly in very many cases it spreads, as I have said, like a wave. In the presence, then, of this fact we can readily expect to see the eruption in the throat lasting perhaps for only a very short time. That may account for the fact that it is frequently overlooked. I believe it is often present, but not found. I do not know whether I would go quite as far as Dr. Forchheimer in the belief that the diagnosis may be made so frequently by the character of the eruption in the throat, because I have repeatedly seen an eruption on the skin in rubella which I could not tell from that of measles, and it is very probable, therefore, that the eruption in the throat may also resemble it exactly sometimes. But I think he is quite right in describing the average eruption as a pale and fleeting rash on the palate in rubella, and as a much more distinct, larger and deeper red eruption in measles.

DR. W. P. NORTHRUP.—I would like to know the definition of enanthem.

DR. FORCHHEIMER.—It is a term that has been introduced especially by the French authors, and justly introduced I believe, simply meaning an eruption on the membrane, when it is an enanthem, and when it is without, it is an exanthem. That is the only difference between the two. I have used the term constantly and I think we all have, and doubtless Dr. Northrup has himself.

DR. NORTHRUP.—No, I have not.

DR. FORCHHEIMER.—Then you soon will.

DR. A. JACOBI.—Dr. Northrup makes a similar difference himself, for instance, between epithelia and endothelia, for the same reason that we do between exanthem and enanthem.

DR. E. M. BUCKINGHAM.—In a very large number of cases of measles that I have watched from day to day, I have found that on drawing a line with pen and ink around the individual spots, it proved very conclusively that the same spot is not always the same size. This makes a very distinct division between the two.

DR. SAMUEL S. ADAMS.—My experience coincides with that of Dr. Forchheimer so far as the spots are concerned, and particularly in reference to the rapidity with which they disappear. Of course the best way to study the enanthem is in the negro. I have observed that these spots were present on the mucous membrane; in German measles it disappears very rapidly and in measles it follows the true course of the disease. Another point is the character of the eruption upon the throat as compared with that on the external surface. I think we will find by observing the cases closely, that it is, to a very great extent, an index. If the eruption upon the throat is severe, then the eruption upon the skin will be severe. That possibly will be found true of measles, but I have not observed it as much. Certainly it has been present in epidemics. In one epidemic in the Foundling Hospital we had fifty children affected with it without any mortality whatever. That occurred about two years ago and was followed by an epidemic of measles, which my predecessor attended, in which the mortality was very great.

DR. T. M. ROTCH.—If this symptom, or rather sign, of Dr. Forchheimer proves to hold good in coming epidemics, of course it will be a very valuable addition to our means of diagnosticating the disease. There are a great many points in the discussion which usually take place when we speak of rötheln and measles, on the side of those who hold that there are diagnostic points. Most observers state that they have an epidemic of rubella and then proceed to describe it. In many instances it seems that they had no right to call it rötheln. Many observers fail to recognize that in measles there is a great variety in the symptoms. Those who attribute diagnostic value to some of these symptoms of rötheln should also at least allow that measles is very varying, and that these same symptoms are found also in measles. The symptoms also vary much in intensity in measles. If the symptom referred to by Dr. Forchheimer is proved to be diagnostic, a decided advance will have been made in recognizing the disease. Undoubtedly measles may occur a number of times.

DR. A. JACOBI.—I cannot speak from my own experience in these matters, but it strikes me that this paper of Dr. Forchheimer is a very valuable addition to our means of diagnosis. We all know how difficult it is is to make up our minds oftentimes in cases resembling measles. There are two additions to our means of diagnosis that have come up the last year: First, the diagnostic enanthem referred to by Dr. Forchheimer, and second, the enanthem described by Koplik in measles. In regard to that I will say that again I have no experience, but I have talked with a number of men who have seen the same enanthem in the mouth, about the cheeks, that Koplik describes. Moreover, there is confirmation of this on the other side of the water by very good observers. In the Berlin Children's Clinic, under Heubner, every case of measles has been examined for these signs. The report, by Slawyk, may be found in one of the last numbers of the *Deutsche Medicinische Wochenschrift.* Of twenty-six cases of measles they found it, if I am not mistaken, constantly in twenty-five cases, which would make 96 per cent. If Koplik's enanthem appears to be confirmed for measles, and there is another enanthem which can be recognized as characteristic of rubella, then I think the mucous membrane will be more safe to use for the purpose of diagnosis than the external integument.

DR. CAILLÉ.—Dr. Forchheimer's suggestions may be of value to us in making an early diagnosis, but the term enanthem is one I do not like to see made use of generally. We have no visible rash where there is endothelium. We have visible rash where there is skin and mucous membrane. In regard to the possibility of telling one form from the other early, I have been trying that very earnestly for the last ten years, as it is one of my duties to keep measles, scarlet fever, rubella, and all forms of contagious disease out of the "Babies' Wards," and I have come to the conclusion that we will always be able to distinguish one form of rash from the other in the majority of cases, but in some *we will not be able until we have a culture test.*

DR. HENRY FRUITNIGHT.—Since I have read Dr. Griffith's contributions, I have examined the mouths of all the cases of rötheln in German measles which have come under my care, and found the signs described by Dr. Forchheimer present in more than 70 per cent. of the cases, and I am inclined to think it is a diagnostic test. As a proof of this I will say that in some cases the patients had passed through attacks of true measles several weeks before the attacks of rubella, and the appearance of the enanthem in the mouth was entirely different from that present during the attack of rubella. Furthermore, we have had quite an epidemic of measles in the section of New York in which I reside and in 90 per cent. of the cases the eruptive symptoms in the mucous membrane of the mouth, as described by Koplik, have been found. In regard to the symptoms differentiating between rubella and rubeola, I would say that the symptoms on the mucous membrane of the mouth are much more aggravated in measles. Very often in rubella there is almost a total absence of constitutional symptoms, and this, together with the rapidity with which the rubella eruption disappears, is another diagnostic point.

DR. FORCHHEIMER.—I have not referred to Koplik's enanthem, because I want to verify it myself. I do not doubt he is right. I have in my little book on the Diseases of the Mouth, some time ago, described the appearances in the mouth. It seems to me if one has once seen these and taken into consideration the appearance of the lips, cheeks and tongue, it is almost impossible to mistake these manifestations for those of German measles. The two conditions are to me so absolutely characteristic and distinct that I am always prepared when I see the condition in German measles or genuine measles, to be willing to make a diagnosis before the eruption appears; in genuine measles, sometimes as long as thirty-six hours. In regard to the objection of Dr. Buckingham, of course I am describing the average when I say they are the size of a large pin head. I have seen them smaller, but I have never seen them larger. Above all is a peculiar color. The color of the enanthem is different from that of measles, and altogether different from that of scarlatina. Any one who has seen it cannot fail to distinguish between these enanthemata. In the enanthem of German measles the spots do not increase in size. When they come out they come out in their largest circumference, and then there takes places a process of involution, which, as I stated, sometimes in very pale mouths leads to pigmentation, just as pigmentation may take place in the skin.

Chronic Atypical Polyarthritis Commencing in Infancy.—Porcelli, (*La Clin. Mod.*), records an atypical form of joint disease beginning in a child, aged three months. The disease began with painless swellings over the joints, leading eventually to ankylosis. In addition to these chronic joint lesions some of the ribs were fractured spontaneously. The corresponding muscles underwent secondary atrophy. There was no paralysis or spasm. There was albuminuria and increase in the salts of the urine, with the exception of the urea, which was diminished. No heart affections could be detected. The family history showed a well-marked neuro-arthritic diathesis. The author does not believe in the neuritic or microbic theories of rheumatism, at any rate as far as this case is concerned, but believes it to be an example of diseased tissue metabolism. The exact pathology of rheumatism is yet to seek.—*British Medical Journal.*

THE FORCIBLE REDUCTION OF DEFORMITY IN POTT'S DISEASE.

BY FRANK E. PECKHAM, M.D.,
Orthopedic Surgeon, Rhode Island Hospital, Providence, R. I.

(Concluded from page 645.)

Case III.—M. A., a boy aged five years. Entered Rhode Island Hospital October 30, 1897, with a lumbar and lower dorsal caries and a moderate deformity. The duration of disease was only a few months.

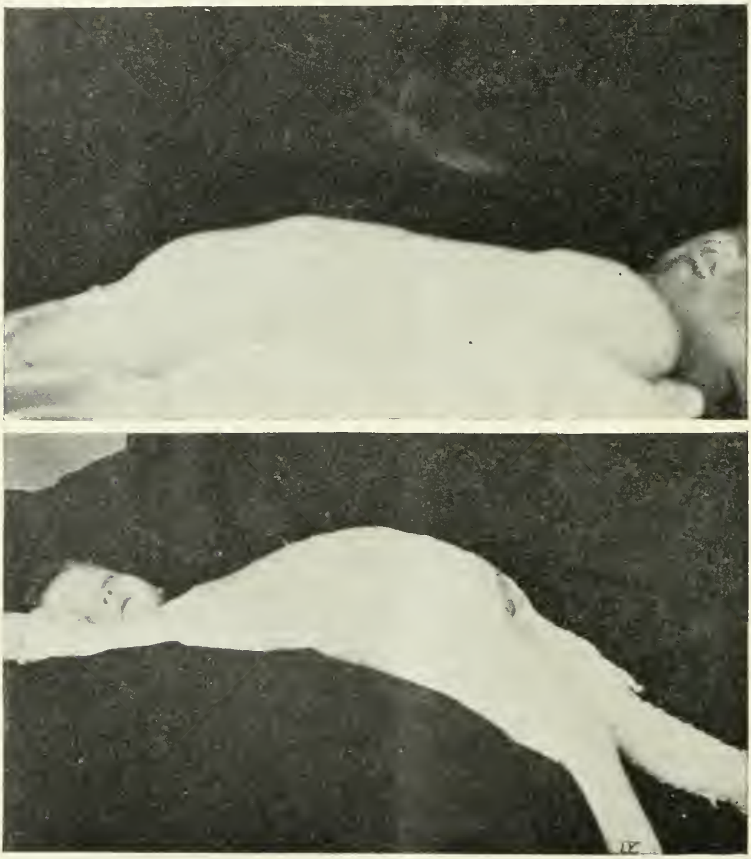


Fig. 4 SHOWING PATIENT III., A BOY OF FIVE YEARS, BEFORE AND AFTER TREATMENT, THE PLASTER BEING APPLIED FROM THE KNEES TO THE AXILLA.

December 2, 1897, forcible correction under ether and in this case plaster applied only up to level of axillæ, but with considerable lordosis in an attempt to hold deformity over corrected plaster thus applied was inefficient, because any flexion of thighs tilted the pelvis, resulting in a backward projection of the spine and increasing the deformity; consequently at the second operation,

January 12, 1898, the patient was held in extreme lordosis, and plaster applied from the knees up to the level of the axillæ, and then a bed arranged so that he rested comfortably in that position. This position was maintained until February 7th, a little over three weeks, when a back-brace was applied, and on February 25th the patient was sent home. He has reported at the Out-Patient Department since, and I have seen him within two weeks, the spine being still held in the position shown in the photograph. Although two corrections were made it was only after the last one that the spine was held successfully, requiring three weeks of plaster to accomplish it, thus showing that in these early cases it is much easier to get the desired results.

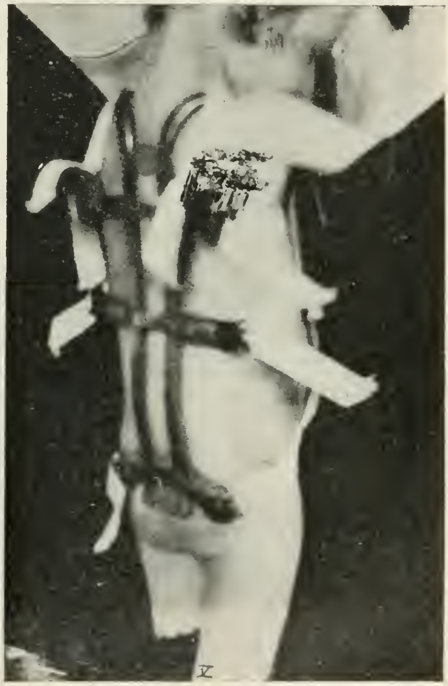


Fig. 5. SHOWING THE FINAL RESULT IN THE CASE OF PATIENT III.

Case IV.—F. K., a girl aged four years. Entered Rhode Island Hospital May 7, 1897. There had been a Pott's disease, with deformity, in the upper dorsal region for about three years, and a left hip disease had existed for several weeks. Operations by Calôt's method December 29, 1897, February 4 and March 4, 1898. The photograph shows the result up to March 4, 1898.

On April 28, plaster was applied without ether, with patient extended on a frame.

Since writing the above, this patient has died. On April 28, 1898, plaster was applied with child lying upon a frame. Although ether was used, no extension was applied and no manipulations whatever were necessary, but after this the child did poorly, complaining of pain in the diseased hip. Two days later, April 30th, plaster was removed and patient made comfortable upon a Bradford frame with extension applied to the leg, which was elevated. The child continued to fail, however, and died on May 19th, just three weeks after the application of plaster. An autopsy could not be obtained, but an examination of the back showed that it was perfectly firm and could not be bent from its position. There was no sign of an abscess discovered. In this case it seems difficult to believe

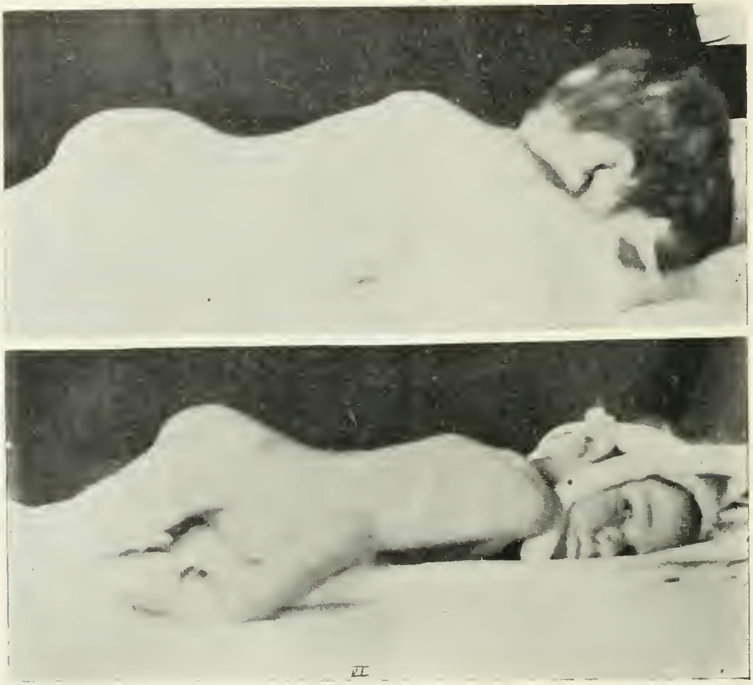


Fig. 6. SHOWING PATIENT IV., A GIRL OF FOUR YEARS, BEFORE TREATMENT, AND THE IMPROVEMENT AFTER THREE PARTIAL REDUCTIONS.

that the simple application of a plaster jacket under ether, with a child lying easily on a frame, could have caused all this trouble.

CASE V.—E. B., a boy aged seven years. Entered Rhode Island Hospital April 27, 1897, with a Pott's disease, and resulting deformity in upper dorsal region, of three and one-third years' duration. Marked ankle clonus was present. There was no motor or sensory paralysis, but boy was unable to walk on account of paresis and the jerky movements.

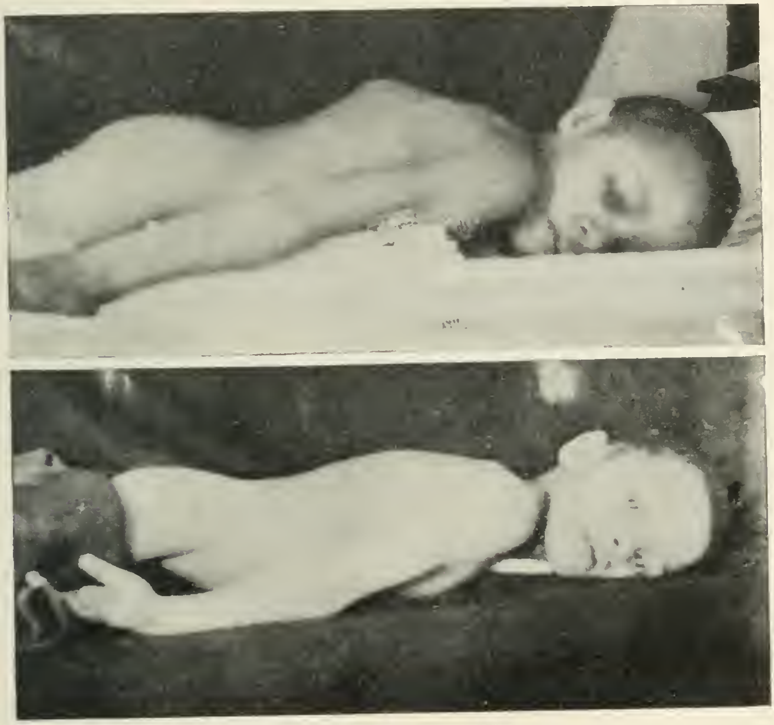


Fig. 7. SHOWING PATIENT V., A BOY OF SEVEN YEARS, BEFORE AND AFTER TREATMENT.

Operations, Calôt's method, on January 8 and 22, 1898, with the result upon the deformity, as shown in photograph. On May 10th the patient was placed upon a frame and plaster applied without ether, while double extension was made upon head and legs.

The ankle clonus is behaving just as it did in Case I, becoming slowly diminished, and can now be controlled with a voluntary muscular effort on the part of the patient.

CASE VI.—W. D., a girl aged three years. Entered Rhode Island Hospital with Pott's disease and deformity in upper dorsal region, as shown in photograph. This condition had existed for about two and one-half years in April, 1898.

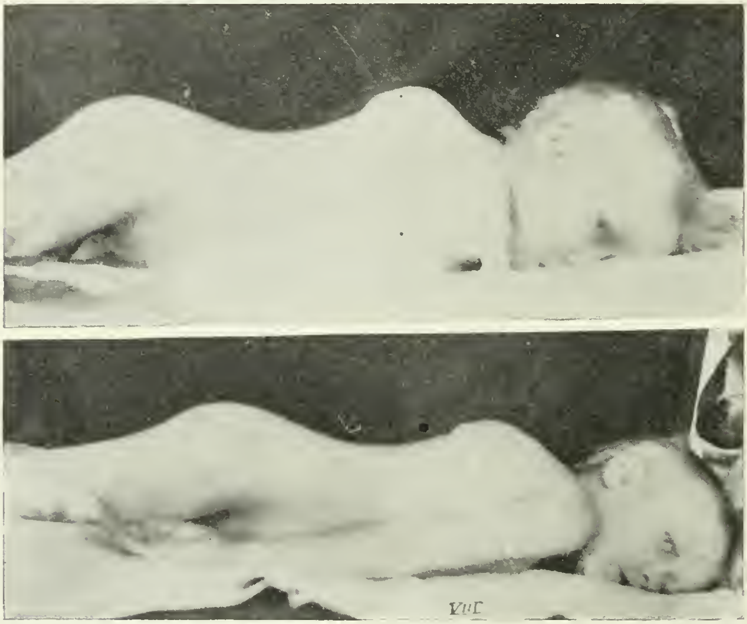


Fig. 8. SHOWING PATIENT VI., A GIRL OF THREE YEARS, BEFORE TREATMENT, AND SLIGHT IMPROVEMENT AFTER ONE TREATMENT ON THE FRAME, WITHOUT ETHER.

The photograph shows the improvement from one application of plaster upon the frame, without ether.

After these operations by Calôt's method, there is always an increase in the pulse rate. In the first cases there was some pain complained of, but at no time was an opiate necessary. After the first two or three times, becoming more acquainted with the details and consequently doing it much more rapidly, there was scarcely any shock, and a patient operated in the afternoon would almost invariably be ready for breakfast or dinner the next day, as if nothing had happened. In Calôt's method the patient is held over the blocks until the plaster reaches the level of the deformity, then suspended by the head while the application is completed, the weight of the body suspended being considered sufficient to keep the deformity reduced. I have found that this is not so, and have always had an assistant make extension upon the legs during the suspension, but even then the deformity can not be held completely reduced, and it will be seen from the photographs exhibited that in no case have I been able to completely obliterate it. By Goldthwait's method this difficulty is rendered less troublesome by making extension while the patient is placed back downward over the longitudinal bars, these bars having their convexity upward. Thus the spine can be overcorrected and the plaster applied while this position is maintained. Whichever method is employed, it is surprising how little the patient is discommoded about the only thing being the unpleasant effects of the anesthetic, and latterly in attempting to see how little ether could be used, even this has been reduced to almost nothing.

As stated before, the immediate and forcible reduction of deformity is possible without injury to the patient and it remains to be seen what the ultimate results will be, and much time must elapse before these reports begin to come in. As far as has been demonstrated, up to the present time it is of greatest use in the early cases with beginning deformity. Here, by means of the frame and convex parallel bars (as devised by Dr. Goldthwait), the deformity can be corrected easily and without ether. In cases of paraplegia, it is the operation "par excellence." In old cases, and especially those with large angular deformities, the advisability of operation depends entirely upon the fact, yet to be proved, whether or not bony anchylosis will be the final condition

266 BENEFIT STREET.

Diabetes in Children.—Dr. Dreyer reports (*Deutsch. med. Woch.*, No. 37, p. 596) a case of diabetes in a child of two years. According to the author, this is the seventh recorded instance of the occurrence of this affection in children up to three years of age, and the fourth case in a child of two years or under. In spite of treatment, death occurred twelve days after the affection was recognized. Autopsy was not made. At first the urine contained sugar only; the day before death, aceto-acetic acid, albumin and sugar were present. In these infantile cases of diabetes, the author believes the prognosis almost invariably fatal.—*Medico-Surgical Journal.*

DERMOID CYST OVER THE CENTRE OF THE LARGE FONTANELLE.*

BY A. JACOBI, M.D., LL.D.,
New York.

Av., a Cuban boy, was presented when he was eight months old, with a tumor of the size of a coffee bean over the centre of his large fontanelle. It was first noticed when the child was a few months old; at that time it had the size of a pea. The fontanelle was open and of the size it usually has at the age of eight months; pulsation could be felt through it, and crying raised it. The tumor was of the color of the scalp, not vascular, not congested, not sensitive, and covered with hair. It was not changed in size or shape by compression, but could be depressed (the fontanelle being still fibrous). Some pulsation could be felt through the tumor, and the latter would rise with forced expiration (crying). These symptoms were attributed to the condition of the fontanelle on which the tumor was situated, but the operation was postponed on account first of the possibility of a mistake, and of the increased safety of a surgical procedure in later years when ossification would have been completed.

The child was again presented in May, 1898, when he was four years and nine months old. The tumor had the size of a hazelnut, was covered with hair, not discolored, not vascular, not markedly depressible, but elastic and semi-fluctuating, and slightly compressible under bi-lateral pressure. It was not transparent. Its shape was spherical; it had no pedicle, but its base appeared narrower than the rest of the tumor. It was not removable from its point of attachment, which was quite firm. The skin on top, at the greatest distance from the skull, appeared rather thin. There was no pulsation in or through the tumor, and no change with exertion or with crying.

Diagnosis.—Congenital dermoid cyst. No possible mistake for meningocele.

A longitudinal incision through the covering scalp proved the skin of normal thickness. The capsule was easily found and readily separated from the surrounding tissue until the periosteum was reached. There it and the capsule were firmly adhering. In the attempt at separating them a small opening was accidentally made into the tumor, and some little of the contents was lost. The opening was kept closed with pincers. The periosteum was torn off the bone to the extent of a square cubic centimetre. This part of the periosteum which remained attached to the tumor was rather thin. During the latter part of the operation the cause of the difficulty in finishing it quickly was found in the fact that there was a depression of the bone more than half a centimetre in depth in which the lower part of the tumor was imbedded. The bone itself, with the exception of this depression, was normal; there was no hyperostosis around the depression, or any where else.

---

* Read by title before the American Pediatric Society, Cincinnati, O., June 2, 1898.

The tumor was found to be a cyst, both dermoid and sebaceous. Inside the part bordering on and attached to the indentation of the bone, there is a small bundle of minute hair. The microscope shows fat globules in large quantities and cholestearine crystals.

The locality of the tumor, and its contents, prove its dermoid character. It having been observed a very few months after birth, when it was quite small, and the depression of the bone, prove that it existed at an early time. There can hardly be a doubt that the duplicature of the ectoderm forming the cyst was of early fœtal nature. It is probable that where the tumor was formed ossification remained incomplete and the bone thin. In a case of Heurtaux's, in which the development of the tumor became rapid about the thirtieth year of the patient, there was no ossification at all. In most other respects the description of my case is identical, to a great extent, with all those reported. In a case of Giraldés, and in one of Arnott, there was the same apparent pulsation which I described above. In a few cases the bone was found very thin, either by absorption or by deficient ossification; in a few others there was a hyperostosis round the point of attachment in the periosteum.

The diagnosis from encephalocele, or from meningocele, may be doubtful in occasional cases. The scarcity of the former over the centre of the fontanelle should not be claimed as a diagnostic point, for cases like that described above are also rare. A meningocele fluctuates, is very transparent (but possibly may, when small, be covered by skin), hairless, and compressible;

its contents can be forced back into the cranium, and may thus give rise to cerebral symptoms. Traumatic "spurious" meningocele need not give rise to cerebral symptoms, may not be (rarely is) reducible, and is covered by normal skin. When very small, it may give rise to doubts, and in some cases, when the question of an operation is raised, it will not do to be rash.

The contents are not always of the same consistency. Some contain, with the usual contents, a serum rich in sodium chloride.

A case of Sibthorpe and Hardy was not exactly over the centre of the fontanelle.

The number of cases of dermoid of the large fontanelle which have been reported is small. The first case, by Heldea (1770), was quoted by Wernher, who took these tumors to be strangled meningoceles. Picard related one in 1840; it was as large as a fist, and was observed on a woman of sixty years. Hewitt collected five cases, Giraldês fourteen. The best article on the subject known to me is that by Lannelongue and Ménard, in their "malformations de la tête et du cou."

The Bacteriology of Whooping-cough.—The results of investigations on this subject have been quite contradictory until within the last few months, during which period three investigators have published results which practically agree. Deichler (*Zeitsch. f. Wissensch. Zool.*, 1887, Bd., xi.) described a protozoan which he found constantly in the sputum of whooping-cough. Later Kurloff (*Centralbl. Bakt. u. Parasitk.*, 1896, Nos. 14 and 15, Bd. xix.) described flagellate bodies. Afanassieff (*St. Petersburger med. Woch.*, 1887) and Sentschenko (*Wratsch*, 1887) described a bacillus which they found constantly in the sputum. M. Cohn and H. Neumann (*Archiv f. Kinderheilk.*, 1893, Bd. xvii.), after a prolonged study, came to a negative conclusion in regard to the bacillus, considering it as a saprophyte normally present in sputum, and described a diplococcus which they had met with constantly.—*American Journal of Medical Sciences.*

HEATSTROKE IN INFANTS.*

BY IRVING M. SNOW, M.D.,

Clinical Professor of Diseases of Children, Medical Department, University of Buffalo ; Member of American Pediatric Society ; Physician to Buffalo Fresh-Air Mission Hospital, etc., Buffalo, N. Y.

It is unfortunate that the condition known as heatstroke is so rarely described in the numerous treatises upon diseases of children. Most books upon general medicine discuss the subject only in reference to adults and adolescents, and the reader would infer that the symptoms of heatstroke were never observed in infants or young people.

A few illusions to insolation-heatstroke in babies may be found in periodical literature.

Illoway records three cases of heatstroke in infants. Dr. Henri La Fleur presented the history of a case of insolation before this society in 1896. The discussion of the paper developed the fact that in Washington, New York, and Philadelphia, heatstroke was occasionally observed in babies. The interesting point was also raised, whether the hyperpyrexia and cardiac depression observed in Dr. La Fleur's case were not due to a gastro-intestinal toxæmia.

The two conditions are easily confused, and the border-line between the two maladies is exceedingly vague, as frequently in infants and occasionally in adults the hyperpyrexia of heatstroke is associated with vomiting and diarrhœa. It is well to remember that in dog-days, some so-called cases of cholera infantum with excessively high temperature and moderate vomiting and diarrhœa are actually cases of insolation, and that prompt recognition and vigorous hydrotherapy are necessary to save life.

During July, 1897, I observed two cases of heatstroke in babies. For the first few days in July the weather was excessively hot, the average maximum temperature from the 3d to the 10th of July being 90.4°; the air was still; the sky clear; the atmosphere not unusually humid. As a result of this heat twenty-four deaths from heatstroke occurred in Buffalo—an unprecedented number for Buffalo, where the malady is rare.

---

*Read before the American Pediatric Society, Cincinnati, June 2, 1898.

CASE I.—A boy of six months; weight fifteen pounds. In early infancy he was suckled for a few weeks and afterwards fed upon diluted cow's milk. At the age of nine weeks he suffered from a paroxysmal cough (pertussis?). During the first three days in July the baby showed signs of indigestion—vomiting, and passing dyspeptic stools. July 4th, the atmospheric temperature was 93°, the hottest afternoon of the season; the child was taken three miles in an electric car. While on the car he looked very ill and had a convulsion. I saw him at 5 P.M.; there was a rectal temperature of 107.6°; respiration 60; the heart's action was rapid, feeble, irregular; there were moist râles at the base of the lungs; the skin was hot and burning; the complexion became gray; the child was in most desperate collapse.

The baby was placed in a bath at 80° F., five minutes' friction being used; it was then placed in a wet pack for twenty minutes; after the pack the temperature was 105°, one hour later 99°. The baby was given thirty minims of whiskey hypodermically; the feet were wrapped in hot flannels. Nevertheless, there was no improvement in the child's general condition.

At 7 P.M., temperature, 103°; respiration, 40; cold-pack and intestinal irrigation at 80°; at 9:30 P.M., temperature 105°; bath and pack twenty minutes later, temperature sank to 99°.

During the night the child was kept out of doors and continually fanned. Temperature taken hourly, varying between 101° and 102°; the baby was given whiskey and water frequently, and also a laxative dose of calomel. July 5th, temperature 100°, 101°, the child's expression was better, the pulse stronger. It had two blackish stools during the day; was fed upon whiskey and water and chicken soup.

July 6th.—Temperature 100.5°; occasional cough; râles at the base of the lungs; no rapidity of respiration or areas of silence; two dark watery passages. The trunk was covered with a punctate, scarlet rash. Food taken with avidity.

July 7th.—All symptoms improved.

Rapid and complete convalescence; no peeling of the skin. This child presented only the symptoms of high temperature and profound collapse; its condition was quickly improved by hydrotherapy; the bronchitis was a relic of an antecedent whooping cough; the scarlet rash an erythema due to the general disturbance of function from the hyperpyrexia, although the baby was under weight, badly fed, and dyspeptic; there were only mild digestive symptoms.

CASE II.—Boy; seven months old; suckled; well, with exception of colic.

The child slept in a room directly under a flat tarred roof. During the hot days in July the tar melted and flowed down the sides of the building. In this sweat-box the baby lay during the hot weather.

Its illness was first noticed July 5th, when the child ceased to perspire, refused its food, and a rash of widely separated papules appeared upon the back of the neck, and later spread over the entire trunk. The baby seemed somnolent during the morning, but started whenever an explosion of cannon or firecrackers occurred near its room. Its skin was hot and burning to the touch; the bowels were constipated.

July 6th.—A physician saw the child; found a rectal temperature of 107° and sent the baby to the General Hospital, service of Dr. Himmelsbach, by whose kindness I am enabled to report the case.

At 1:30 P.M., received at hospital; child plump, well developed, crying, restless; skin hot and dry; pupils dilated; occasional muscular twitching; temperature 106.2°; pulse 176: respiration 78°; eruption very noticeable.

The baby was given a cool intestinal irrigation; was placed in a cool bath at about 60°; was well rubbed; afterward it was taken out of the bath and given fifteen minutes' friction with a dry towel. Before the bath, and one and one-hours afterward, it received $\frac{1}{200}$ grain strychnia, hypodermically.

The patient reacted well; one and one-half hours after the bath, temperature 99.4°; it was given whiskey, chicken broth, ice was placed on its head. At 5 P.M. the child was still unconscious; fair pulse; no fever.

Temperature at 8 P.M., 104.4°; at 11 P.M., 105.2°; the hydrotherapy was continued. Potassium bromide 0.06 given at 11:30 P.M.; at 8 P.M. with the rising temperature the child began to have loose, watery passages, which occurred every half hour, until its death at 1:30 A.M.; autopsy refused.

This child, breast fed, of superb physique, after lying three days in a close, hot atmosphere, developed somnolence and high temperature. No improvement was effected by the reduction of the temperature by hydrotherapy; the temperature quickly rose and was associated with profuse watery stools. The diarrhœa was probably a terminal symptom from acute impairment of the digestive functions. Occurring in a breast-fed child already moribund, the diarrhœal condition bears but slight resemblance to cholera-infantum.

The writer, while clinical clerk in the Great Ormond Hospital for sick children, saw a case similar to the first described in this paper. A poorly nourished baby was brought to the hospital in a convulsion; temperature 108°. Cold baths were employed; the child, nevertheless, showed a recurring tendency to hyperpyrexia for eighteen hours; the fever finally subsided; there was no disturbance of digestion, nor did any acute malady subsequently develop; the patient was discharged, cured. From its actions and its micro-cephalic head the baby was supposed to be a congenital idiot. The illness bore an exact resemblance to the hyperpyrexia of heatstroke, although it occurred amidst the dense fogs of a London autumn.

It may be again emphasized that heatstroke in babies is easily confused with an acute gastro-enteric infection. The temperature is often not accurately taken or observed at all. The rapid collapse is ascribed to the very moderate vomiting and diarrhœa.

In typical heatstroke if the patient be thoroughly examined, the whole attention of the physician will be centered in the extraordinary high temperature; the loose passages occur late, and are terminal symptoms; the cardic depression and temperature, 107° to 108°, are not sufficiently accounted for by the usually moderate diarrhœa; again, in an intestinal toxæmia, the fever commonly subsides after vomiting and purging.

The therapeutics of insolation are well understood. In babies in addition to baths and packs, intestinal irrigations with cool water 70° to 80°, are to be recommended. It is also probable that the subcutaneous infections of large quantities of artificial serum would revive the flagging strength of the heart, or would combat the unknown infection or toxæmia which, Sambon has recently asserted, is the cause of the group of symptoms which he calls, siriasis (heatstroke). The fact that injections into the cellular tissue of large quantities of artificial serum, have great curative powers in mycotic vomiting and diarrhœa, and in ileocolitis has been recently clearly proved by Le Sage. In infantile heatstroke this procedure would be indicated, if no improvement had occurred in the cardic respiratory and nervous symptoms, after the temperature had been reduced by hydrotherapy.

Dr. L. Westensa Sambon, of London, advances the theory that heatstroke is an infectious disease. Whether it be an auto-infection, some micro-organism under the influence of high atmospheric temperature acquiring extreme virulence, or whether the avenue of infection be the respiratory or digestive tract, Dr. Sambon does not show. He believes that heatstroke should be placed in the same category as yellow fever and dengue, being due to a specific germ, to whose growth and transmission to man a high atmospheric temperature is necessary.

Dr. Sambon asserts, that many facts point to the infectious nature of heatstroke, viz.: the relative immunity of residents in subtropical and tropical climates, the epidemic prevalence of heatstroke, not always at the hottest time of year; also sundry nearly uniform pathological findings, the fluidity of the blood, the peculiar engorgement of the lungs, the ecchymosis in various organs, the acute parenchymatous degeneration in nervous and other tissues, are highly characteristic of acute microbian-poisoning.

BIBLIOGRAPHY.

1. Illoway.—Medical News. 1891.
2. La Fleur.—Transactions American Pediatric Society, 1896.
3. Sambon.—British Medical Journal, March 19, 1898.
4. La Sage.—Traite des Maladies de L'Enfance, tome II., page 603.

476 FRANKLIN STREET.

A Case of Pneumococcic Croup.—Seuvre reported to the Société Médicale de Reims (Séance of January 14th, *Revue Mensuelle des Maladies de l'Enfance*, March, 1898, p. 157) the case of a child of eight years, who, during an attack of influenza, manifested an erythematous angina. Laryngeal stenosis rapidly supervened and, despite the injection of Roux's antitoxin, called for tracheotomy on the evening of the same day. The wound gave issue to a false membrane of colloid appearence, which gave a pure culture of the pneumococcus. The case recovered.—*American Journal of Medical Sciences.*

FATAL HÆMOPTYSIS IN AN INFANT TWO YEARS OLD.*

BY GEO. N. ACKER, A.M., M.D.,

A. H., aged eighteen months, male, colored, came under my care at the Children's Hospital, December 21, 1896. The infant was treated in the hospital during the summer for enteritis and was discharged cured October 23d. He remained well until the middle of September, when a cough developed, which has been getting worse up to the present time. The patient has been losing flesh and is emaciated and anæmia. He has a frequent loose cough. There is slight dulness with some mucous râles at the base of the right lung anteriorly. There is dulness over the left lung anteriorly with few râles. The respirations are 64 per minute. The pulse is 160 per minute, and the temperature 104° F. The tongue is slightly coated. For some days he has had three loose stools daily. The infant has been given general diet.

January 18th.—The patient has failed to improve. There is dulness over the left lung anteriorly, and posteriorly, with diminished breathing and many mucous râles.

There is slight dulness lower part of right lung with broncho-vesiculac breathing, and numerous fine mucous râles.

There has been an irregular temperature ranging from 99° F. to 103° F. On several dates the morning temperature has been 97° F. and the evening temperature 105.5 F.

The condition of the infant gradually became worse, and the pulmonary symptoms more marked, when he suddenly died May 6, 1897, from a profuse arterial hæmorrhage from the lungs.

Necropsy made by Dr. Walter Reed, U. S. A.

Examination shows numerous areas of tuberculous caseation, split pea in size and larger, scattered through substance of both lungs. Upon opening trachea there was found on posterior wall an ulceration, oval in shape, its long axis parallel with that of trachea size 13 x 6 m.m. extending through mucousa. A small dark clot of blood was found protruding from left main bronchus.

---

*Read before the American Pediatric Society, Cincinnati June 1, 1898

Upon slitting up the bronchi it was seen that this clot occupied the centre of a second ulceration, located about one inch below commencement of left bronchus. A small probe passed by side of the clot entered readily one of the pulmonary veins. The blood clot having been withdrawn, the ulcer was found to be 7 x 4 m.m. in size, extending through the thickness of the bronchial wall and communicating with a pulmonary vein by a slit-like opening, 1 x 3 m.m. in size. The wall of the vein was considerably thickened at this point. The tuberculous process commencing in the bronchial mucousa has invaded the entire thickness of bronchus and afterwards the walls of the vein. Several enlarged and caseous bronchial glands are present. This case illustrates the way in which hæmoptysis usually causes the death of very young children in tubercular diseases of the lungs. There are on record very few cases of hæmoptysis in infants, and this is only the second time that I have observed this complication in children. Henoch records his experience as follows: "On the whole, hæmoptysis is extremely rare in children before the period of second dentition, although twelve to fifteen children, from the age of two and one half to five years, have come under my notice who, during severe coughing spells, expectorated small quantities, occasionally a teaspoonful, of blood, either pure or mixed with mucus and pus. In one case the compression or perforation of a branch of a pulmonary artery or vein by cheesy bronchial glands and the simultaneous perforation of a bronchus gave rise to an enormous hæmoptysis." Vogel, in his work, states that he had never observed but one case of pulmonary hæmorrhage and that was in a girl ten years old. Menjr and Repper write that hæmoptysis very rarely occurs in the early stage, or during the progress of the disease; and when it occurs as the cause of sudden death, is due to the complication with bronchial phthisis, rather than to the rupture of a blood-vessel in a pulmonary vomica.

I quote the following from Holt (Diseases of Infancy and Childhood): "Hæmoptysis is a rare symptom but not unknown even in young children. Henoch has reported a case of fatal hæmoptysis in a child ten months old, where the hæmorrhage was due to the rupture of an aneurism in the wall of a cavity. Herz, in 247 clinical cases of tuberculosis in children, records eight of hæmoptysis—four of them under five years, and the youngest only eighteen months old. The records of 131 autop_ sies on tuberculous children in the Pendleburg Hospital, show that hæmoptysis was four times a cause of death; two of these patients were under five years, and one was only twelve months old. As in adults fatal hæmoptysis is usually due to the opening of a large vessel by ulceration in the wall of a cavity, which is sometimes in the lung and sometimes in one of the bronchial glands."

There is on record a case of hæmoptysis in a child sixteen days old (*Dict de Med. et de Chirurg.*, vol. xxix.)

A case of death from pulmonary aneurism and hæmoptysis in a child aged two and a half years is reported in the *London Path. Soc. Trans.*, vol. ii; also one by Powell (*Med. Times and Gaz.*, June, 1874), of a child seven months old from a similar cause.

913 SIXTEENTH STREET.

New Researches upon Arrest of Growth and Infantilism.—Van den Corput (*Académie de Médicine de Belgique*, October 30, 1897) made a report upon the memoir of Hertoghe, of Anvers, in which that writer contends that arrests of growth, even when not myxœdematous in origin, such as are due to rhachitism, hyperazoturia, congenital syphilis, onanism, and other conditions, are amenable to thyroid treatment. He goes on to show that all arrested growth is dependent primarily upon an alteration of the thyroid gland. He distinctly asserts that the deleterious influences which retard growth exert their earliest effect upon the thyroid gland, which, as variously affected in its functions, produces, according to the degree of the lesion, obesity, rhachitism, chondro-drystrophy, or, finally, myxœdema more or less complete.

Arrest of growth by toxic substances, like tobacco and alcohol, he believes, is brought about in the same way through the functions of the thyroid gland. The nature of infantilism is thus considerably simplified.

Hertoghe has also studied the influence of the thyroid upon the development of the reproductive organs, and concluded that hypertrophy of the thyroid is the first sign of beginning puberty, and is indispensable to the adequate development of the sexual organs at puberty. According to this view, thyroid feeding finds a distinct indication in retarded puberty.—*American Journal of Medical Sciences.*

ACUTE NEPHRITIS OF MALARIAL ORIGIN.*

BY CHARLES GILMORE KERLEY, M.D.,

Lecturer on Diseases of Children, New York Polyclinic; Assistant Attending Physician, Babies' Hospital; Attending Physician, Out-Patient Department, Babies' Hospital, New York.

When the topic of my paper was sent to the secretary, I hoped to acquire from medical literature, sufficient data, in order that I might furnish a fairly comprehensive article on the subject. In this I was disappointed, having been able to find but meagre reference to *acute* nephritis of malarial origin. The books refer to malaria as an occasional cause of nephritis and go no further. Moncorvo, in an article on malaria in infants, which appeared in 1895, states that in Rio Janeiro acute nephritis is not very rare in children affected with malaria. He claims that it appears far more frequently than is generally supposed, but fails to state the percentage of cases in which the complication occurs. It is his opinion that the malarial poison affects the kidney structure in a manner identical with diphtheria, scarlet fever and other infectious diseases. The literature on hæmaturia, complicating malaria, a very common affection in the southern states, is very unsatisfactory. Whether the cases reported were those of simple hæmaturia, or whether the hæmaturia might be considered one of the manifestations of an acute nephritis, I was unable to determine on account of the lack of observation by the authors.

Recently, Thayer of Baltimore, read a paper on acute nephritis of malarial origin in adults, before the Society of American Physicians, in Washington. He states that 758 cases of malaria treated in the Johns Hopkins Hospital showed albuminuria in 46.4 per cent. Casts of the urinary tubules were found in 17½ per cent. The majority of the cases of albuminuria were observed in the estivo-autumnal fever.

Out of 1,832 cases of nephritis treated in the hospital and outpatient department, 26 were found to be of malarial origin. Of these, 13 recovered; 4 died; and in 9 the results were doubtful. He maintained that nephritis occurs in about 2 per cent. of all the Baltimore malaria cases. Nothing especially distinctive in the clinical character of the disease was noted from that of ordinary toxic nephritis. The anatomical changes in the two cases which came to autopsy differed in no degree from toxic nephritis due to other causes. He believes that malarial infection, especially in the more tropical countries, plays an appreciable part in the ætiology of chronic renal disease.

---

* Read before the American Pediatric Society, Cincinnati, June 3, 1898.

The case of which I will give a detailed report, presented the following unusual manifestations:

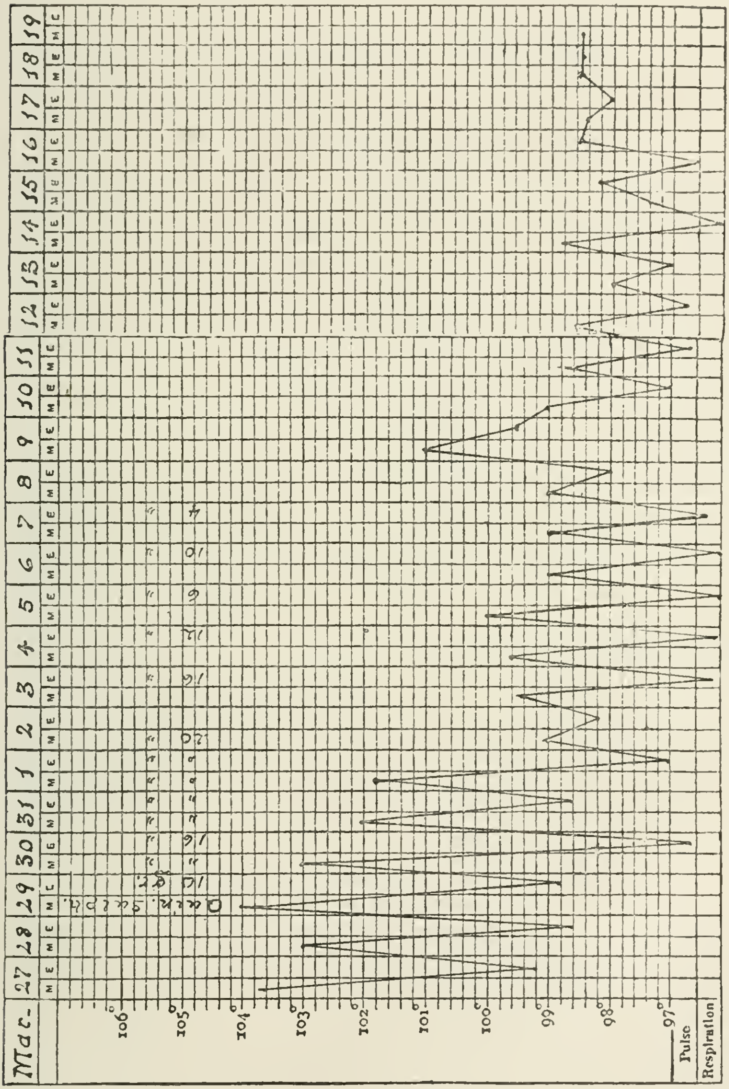
A girl of eighteen months became ill with fever and vomiting. There was no diarrhœa; the stools were normal; moderate prostration. The urine was noticed by the mother to be of a very dark color. The child had had attacks of indigestion, and the parents looked upon the present illness as a repetition of the attacks. The temperature was 102° at noon the *first* day of illness, but returned to the normal in the evening. The following morning the temperature arose to 103° with increasing prostration and irritability. There was but little desire for food, but no vomiting.

The writer first saw the patient at noon on this, the *second* day of the illness. The temperature at this time was 102° F. There was slight prostration; no vomiting. Considerable milk and barley water in equal quantities had been taken. The urine, which had been saved for examination, was of a bright red color, evidently containing a large amount of free blood. There had been no suppression, the urine having been passed freely. The temperature fell during the afternoon, and at 6 P.M. it was normal. Physical examination of child was negative.

The examination of the urine showed free blood in large amounts, hyaline and granular casts, after filtration 25 per cent. of albumin by volume.

The treatment consisted in rest in bed, diluted milk diet, calomel, one grain in divided doses. At 10 P.M. the temperature began to rise, and reached 104° the next morning at 11 o'clock, the *third* day of the illness. After two such exacerbations and remissions in the temperature, distinctly periodical, a diagnosis of malarial infection was thought to be justified. Ten grains of quinine were given during the third day. The temperature fell to normal in the evening. The urine was unchanged. A quart of milk and barley water was taken in twenty-four hours. Stools were normal, and spleen not enlarged.

The temperature remained normal until 2 o'clock the following morning, the *fourth* day of the illness. At this time it commenced to rise and reached 103° F. at 11 o'clock. The child was now becoming somewhat anæmic from the loss of blood; the symptoms otherwise unchanged. Sixteen grains of quinine



TEMPERATURE RANGE IN A CASE OF ACUTE NEPHRITIS OF MALARIAL ORIGIN.

given during the day. In the evening at 8 o'clock the temperature was 96.2° F. The pulse was fairly good. The patient suffered no inconvenience from the low temperature, other than cold extremities, which were relieved by hot water bottles. At midnight the temperature was 97° F.; from this point it arose gradually until at noon on the *fifth* day of the illness it reached 102° F. In the evening it again reached the normal. The urine was passed freely. Examination showed the albumin diminished one-half, but free blood and casts were present. There was no vomiting; no stupor; nourishment well taken. Sixteen grains of quinine were given during the day. The temperature remained normal for a few hours. At midnight it was 102° F., and at 8 A.M., 103.4° F. Quinine, no effect. On the *sixth* day, at 4 P.M., it was again normal, and at 6 P.M. it was 97° F. Sixteen grains of quinine were given. The heart action becoming rather irregular, a condition possibly due to the quinine, it was thought best to give $\frac{1}{200}$ gr. of strychnine three times daily. As there was no enlargement of the spleen, and the quinine having failed to make any impression on the disease, an examination of the blood was made to verify the diagnosis. The specimen was sent Dr. Wollstein, pathologist at the Babies' Hospital. The report was as follows: "Blood specimen shows a number of intra-corpuscular bodies, round and very irregular in shape with light centers and pigment granules at the periphery. The red blood cells containing these organisms are paler and slightly larger than the other red cells. *Diagnosis*—Amœdoid bodies of the tertian malarial parasite."

As will be seen by the accompanying chart, the temperature showed a tendency to a late evening or midnight rise.

In order to use the remedy to the best advantage, seven gr. of quinine muriat were given subcutaneously at 11 P.M. on the sixth day of illness, a short time before the customary rise. The treatment proved effective.

The following day, the *seventh*, the temperature did not rise above 99.2° F. Sixteen grains of the sulphate of quinine were given by the mouth. The urine showed marked improvement, but still contained albumin, 5 per cent. by volume, free blood, and casts. One pint was passed.

On the *eighth*, *ninth* and *tenth* days, the temperature, while not going above the normal, still showed the tendency to the late evening rise and the noon-day fall. On account of the falls to the sub-normal, the quinine was given in smaller quantity, as indicated on the chart, and discontinued on the *thirteenth* day when the urine was free for the first time from albumin and casts. The story of the convalescence is without interest excepting the tendency of the temperature to the sub-normal. The slight rise on the fourteenth day was due to overfeeding. The child made a satisfactory recovery. She came through the illness unharmed, except a moderate degree of anæmia.

113 West Eighty-third Street.

DISCUSSION.

Dr. Northrup.—I had the pleasure of seeing this case with Dr. Kerley, and I am very glad indeed to have him report it here, so that those who are situated as I was at that time, having never seen such a case, may be on the lookout for it. I had never seen a case of acute nephritis where the urine was filled with blood and casts, hyaline and granular, that was due to malaria until that time. About the next day there came a little circular from a doctor in Baltimore, in which he stated that he was going to read a paper on nineteen cases of acute nephritis due to malaria. The very next day, the third, I saw another child with the same symptoms, with marked albuminuria, in which the same routine was gone through. The blood was examined and the malaria plasmodium found. This also remained obstinate to quinine by the mouth and yielded to injections, all symptoms disappearing. So far as I now recall, I had never seen a similar case, until Dr. Kerley's.

Dr. Caillé—I believe it is generally known that malaria infection may produce nephritis. I have always looked upon malaria as an etiological factor in nephritis. Medical men who come from the Congo districts report such cases as occurring among children as well as among adults, and similar report comes to us from medical missionaries in China. Southern practitioners and physicians from the Mississippi Valley who come to New York, report such cases. If hospital physicians will have a routine examination made of the blood, made in cases of nephritis, they will find malaria frequently a causative factor.

Dr. Fruitnight.—I wish to report four cases of this character, three acute and one chronic. The three acute cases suffered from hæmaturia. The chronic case was a boy between nine and ten years old living on Staten Island, who had suffered from recurrent attacks for three or four years. When I saw him he had an acute attack. The malarial plasmodium was found in his blood, and a large number of hyaline and granular casts in the urine. He died in a few days in uræmic coma. One of the other three cases was seen in consultation with the late Professor Loomis. Under quinine, in about a week's time, it was improved. The patient was a boy about eight years of age. The two other cases I saw last fall, one three and the other five years old, and they had typical attacks of quotidian fever, the plasmodium being found in the blood. The blood was loaded with blood pigment on examination and the children were sick for a very long time, some five or six weeks. They presented the usual cachectic appearance, the skin had that characteristic yellowish-green hue, and they were altogether miserable. As the doctor says, I think malarial infection can frequently cause nephritis, that is if it is unrecognized. When hæmaturia is present as a symptom in any case, we should not omit to examine the patient for a possible malarial infection, for in very many cases of nephritis due to malaria, hæmaturia is very apt to occur at some period in the course of the nephritis.

DR. FORCHHEIMER.—I was astonished by the remark that the literature is meagre on this subject. I have had occasion several times to look up the literature of the subject, especially recently, when I wrote the article in *Keating's Encyclopedia*. Certainly in that article I have made a rather extensive mention of nephritis in malaria, and have described a peculiar form of nephritis, or rather of albuminuria that occurs in connection with malaria in children. At the time a paper on malarial nephritis was read in Washington by Dr. Thayer, I was able to present a specimen of urine which illustrated this special form of albuminuria. It is not the most common form of nephritis, but it is characterized by a black deposit of pigment, the nature of which I have not been able to determine as yet. Of course it can be only one of two things, either some product of hemaglobin, or melanin produced by the plasmodium. The manifestations of malaria present themselves differently at different times and in different places. The form of malaria we have had the last fall and winter in this region has been the estivo-autumnal form. It has been uncommon to find the intermittent form of the tertian or quartan type, although the former has occurred. Depending on the character of the poison and on the individual, depending possibly on the intensity of attack, and depending especially on the chronicity of the attack, we find albuminuria. But albuminuria is only one of the symptoms of nephritis, and the question is where to draw the line. General nephritis, or acute parenchymatous nephritis, or toxic nephritis, as we find in scarlatina, or diphtheria, or measles, is rare in malaria as we see it in this part of the world. In the tropics this form of nephritis is common and adds not a ittle to the gravity of the attack. I have seen one child in whom a chronic interstitial nephritis was, I think, produced by a chronic malarial affection. But in all the cases I have seen, and they have not been a few, I have not seen the relation established positively between chronic nephritis and chronic malaria. Indeed, if I were forced to a statement, I would have to say that the relationship is one that cannot yet be looked upon as positive.

DR. ADAMS.—Dr. Kerley cannot have looked very carefully into the literature, because in 1880 Dr. Busey read a paper on chronic parenchymatous nephritis in children due to malaria or malarial poisoning. I helped in the preparation of the paper, being at that time the resident physician in the Children's Hospital, where the observations were made. The title of this paper can be found in the Index Catalogue under nephritis or malaria.

DR. JACOBI.—Only one remark. The fact that a number of observations have been made does not detract certainly from the meritoriousness of the paper, which is very lucid and very instructive. I think many observers may be disappointed in not finding nephritis in malaria when others in other years may find it or have found it. It is a fact which has been observed that in a number of epidemics and endemics of malaria, no nephritis was found, while in another year in the same neighborhood, nephritis was found. Bartels made his observations in Holstein and found it often. Rosenstein, in his classical book on the diseases of the kidneys, says he did find it on the Baltic Sea, but he did not find it in Holland. Heidenheim did not find it for years in a province along the shore of the Baltic Sea, and then again in the very last year he did find it. They all, however, agree that they find much more chronic than acute nephritis, but that acute nephritis does occur has been proven today. Still, as early as 1880, in the first session of the newly established children's section of the American Medical Association in 1880 (Richmond), S. C. Busey reported cases of malaria nephritis observed in infants. The occurrence of amyloid degeneration of the kidneys in chronic malaria is frequent in malaria-stricken countries, such as Algiers or Hungary.

DR. KERLEY.—I spent something like three or four afternoons at the Academy to learn what I could of the literature, and I found a great deal of it unsatisfactory and not at all conclusive. The observations lacked proof either on account of absence of the plasmodium, or absence of enlargement of the spleen. In fact, I did not consider the literature there of any special worth in considering acute toxic nephritis of malarial origin. Acute nephritis of malarial origin is the same as an acute nephritis due to scarlet fever or diphtheria or any of the acute infections. I found of those, very few cases that I considered authentic.

Iliac Perforation in a Child.—M. Kirmisson, at a meeting of the Surgical Society of Paris (*La Presse Médicale*), reports a case of peritonitis in a child of eight years of age. An examination under chloroform demonstrated a localised collection of fluid. He performed a laparotomy and found a perforation in a knuckle of the ileum, which he satured. The child made a good recovery. In this case there were no symptoms of a perforation, and M. Kirmisson was led to examine the intestines in seeking a cause for the peritonitis.—*Dublin Medical Journal.*

Clinical Memoranda.

KERATOMALACIA.*

BY THOMAS C. EVANS, M.D.,

Lecturer on Ophthalmology, Otology, and Laryngology in the Kentucky School of Medicine, Louisville, Ky.

This patient was referred to me in September, 1897, by the family physician, Dr. S. B. Mills, of this city, on account of an affection of the right eye. The interpalpebral portion of the cornea was straphylomatous; the protrusion between the lids prevented closing of the lids; it was nodular in character and in appearance looked not unlike a large dewberry. The epithelium and proper substance of the cornea having sloughed away, the remaining layers of the cornea, owing to intra-ocular pressure, protruded through between the lids, carrying with it the iris. Neither the conjunctiva, the iris nor the sclera were apparently inflamed. The left cornea was normal. There were only two or three cilia in each lid and they were abnormally long and distorted and twisted into fantastic shapes.

The child was at the time about three months old, and was emaciated in the extreme; it weighed at the time with its clothing, only six pounds. At birth it had weighed eight pounds. The palms of the hands and soles of the feet were covered by crusts or scabs, the remains of a pemphigus. These scabs or crusts were also present over the head, face and other parts of the body.

The child had a typical case of snuffles, and an examination of the anus showed condylomata present. This child was the second born of mulatto parents, the first having died of convulsions during the first month of life.

An unfavorable prognosis was given both as to life of the infant and integrity of the eye.

Treatment.—Multiple paracentesis of the cornea was practiced; each nodule of the staphyloma was punctured by a Græfe knife; no attempt was made to apply pressure. A weak solution of atropine was instilled into the eye; inunctions of mercury were ordered.

---

*Reported to the Louisville Ophthalmological and Otological Society.

The paracenteses were repeated at intervals of about a week for a period of five weeks, when the staphyloma had entirely disappeared; the cornea had apparently resumed its normal contour and the lids closed over it perfectly, the interpalpebral portion of the cornea being still the site of a dense leucoma; this opacity has since then undergone marked diminution both in size and density until now a portion of the pupil can be plainly seen.

The size and tension of the eye is normal apparently, with the exception of a slight flattening of the cornea, and I feel confident that the child later on will have useful vision in this eye.

The general condition has rapidly improved under the inunctions of mercury, and, as you see now, is a well-grown boy for eleven months; he is plump; his complexion is clear, and the snuffles have become markedly less, though they have not entirely disappeared. He has erupted eight teeth, which is all he is entitled to at this age.

Keratomalacia is a disease found almost entirely in infants under the first year of age. It is a rather rare disease, and the text books, so far as I have been able to ascertain, have little to say on the subject. I believe it is always preceded by some grave constitutional lesion. Among the causes mentioned most frequently are: Marasmus, hereditary syphilis, exhaustive diarrhœas, scarlet fever, and typhoid fever.

There have been a number of micro-organisms found in an examination of these cases—different bacteria have been detected—but they have been mostly the pus-forming organisms, and are not thought to be the cause of the disease; I believe the presence of these organisms is simply coincidental, and that the disease is dependent altogether upon the low vitality and depressed condition of the patient, because of the existence of some one of the wasting diseases mentioned.

In this case, as I have indicated, in the beginning there was no inflammation of the iris or conjunctiva, the staphyloma protruded through the lids almost to the point of rupture or perforation of the staphyloma. Still the sclera remained white and there was no pericorneal or circum-corneal injection or inflammation.

What seems peculiar is that the paracenteses was not followed by a complete anterior synechia.

In this case such a condition did not result; that portion of the pupil which is visible responds readily to a mydriatic, there being no adhesion. I think on the nasal side there is perhaps a little synechia, although this cannot be accurately determined, because of the presence of the leucoma. The opacity has lessened very much within the last month, and if the case makes the same progress in the next sixty days that it has for the past sixty days, I think the entire pupil will be visible.

I exhibit the case because keratomalacia is rather a rare condition, and to call attention to the wonderful reparative and recuperative powers of the cornea. This was certainly one of the most hopeless cases I have ever seen, and yet the result thus far is very promising and ultimate cure is almost assured. I gave it as my prognosis that the only thing we could hope to do would be to save enucleation of the eye; that there was little or no prospect of getting vision.

The text books say that these children all die, almost without exception, within the first year of life, not from the keratomalacia, but from the disease which causes this condition, whether it be marasmus, hereditary syphilis, typhoid fever or other pathological condition. I found only one author who spoke of what the consequence would be if the child lived long enough; he said in the event the child does not die from the wasting disease, later on there will be an ulceration of the cornea and the eye be lost from panophthalmitis.

DISCUSSION.

DR. I. LEDERMAN.—Is there not a form of keratomalacia occurring during adolescence which simulates this very much, though not the same condition?

DR. A. O. PFINGST.—The case is extremely interesting, not only on account of the recovery of the child and its healthy appearance at the present time, but also because of preservation of the affected eye. I saw the patient through the kindness of Dr. Evans when treatment was commenced, and expressed the opinion then that the eye would be lost. The method of treatment followed in this case seems to be unique; I cannot find that the books mention paracenteses so frequently for the relief of a condition, as was done in this case. The result, however, has been so eminently satisfactory that we have no reason to criticise the treatment. While in New York I saw an interesting specimen, showing keratomalacia. A dead child delivered at full term showed annular opacities of both cornea, while the central portion of each was perfectly clear, resembling in appearance somewhat the arcus senilis.

DR. W. O. BAILEY.—I would like to ask Dr. Evans when the family first noticed the change beginning in this baby's eye.

DR. J. M. RAY.—I have seen multiple puncture done a number of times in an effort to relieve staphylomata of the cornea. Four years ago, I was called to see a child about one week old; on examination the baby looked to me much like a mummy. The skin was dry, shriveled, and shrunken as if it had been preserved in alcohol. Both cornea had sloughed with little or no evidence of inflammatory action. There was no particular swelling of the lids and no discharge. Of course along with the ulceration of the cornea there was a certain amount of circumcorneal injection and a very small quantity of mucopurulent discharge, most of which was due to sloughing of the cornea.

I saw the child but once, and it died a day or two afterwards. I made the diagnosis of marasmus with the so-called keratomalacia. I never saw the condition occurring in one eye.

DR. EVANS.—In answer to Dr. Lederman's question: These cases are classed in the same category as those occurring later in life, the so-called cases of neuroparalytic keratitis, which are really not cases of keratomalacia; they are also classed in the same category with keratitis that follows exposure of the cornea. The cases are dissimilar, however, in that in the latter there is a marked xerosis of the conjunctiva which is followed by sloughing of the cornia. In reply to Dr. Bailey I will say that the defect about the eye was noticed by the family ten days before I saw the child; it was noticed after the eruption of pemphigus appeared, which was about the second month. The child was born apparently healthy and robust. Dr. Ray's remarks remind me that those authors who speak of the condition say it occurs usually in one eye, but nearly always involves the other eye a few days later. Rarely both eyes are involved at the same time. I think this case gives us some valuable points as to why we lose some cases of ophthalmia neonatorum. It may explain some of the cases seen in badly nourished children, where we have extensive sloughing ulcers of the cornea following comparatively mild cases of ophthalmia neonatorum. The general condition of the patient has much to do with it. Ophthalmia neonatorum in children like this would almost certainly result unfavorably because of the low vitality of the patient and the general bad condition present. Some authors class keratomalacia among the cases occurring in adult life following infected wounds of the cornea. I hardly think such cases can properly be called keratomalacia. They ought to be classed among the infective diseases of the cornea. I believe, keratomalacia, as a rule, is not due to infection, but to low vitality and general malnutrition of the patient.

Dr. Ray.—Dr. Evans' last remark suggests something further in regard to ophthalmia neonatorum occurring in badly nourished children. I remember a paper read before one of the local medical societies of this city on ophthalmia neonatorum, and I made the point at that time, that this disease occurring in children born before the end of the normal term of utero-gestation was almost invariably followed by loss of the eye. On the other hand, when the disease occurs in robust, well nourished children at full term, with proper treatment the chances are in favor of the eye being saved. Even under the classic plans of treatment, in seven or eight months' children with ophthalmia neonatorum, you are almost sure to lose the eye. Another point which I intended to make in my former remark is this: Dr. Evans spoke of an eruption (pemphigus) on the hands and feet of the child presented. We know that we have pemphigus blisters occurring on the conjunctiva and cornea. I have had two such cases in my own practice, and remember to have seen others. I simply offer the suggestion that the condition present in this case may have started originally from a pemphigus blister.

JAUNDICE IN A CHILD AGED SIX MONTHS.

BY JOSEPH B. MARVIN, M.D.,

Professor of Medicine and of Clinical Medicine in the Kentucky School of Medicine; Physician to the Louisville City Hospital and to the Baptist Orphans' Home, Louisville, Ky.

A child six years of age who was profoundly jaundiced, was recently brought to me for examination. Although there had been no history of colic, and sufficient bile had passed into the intestinal tract to color the stools, the jaundice was enough to suggest obstruction of the bile ducts. The history was not very clear. It was the only child, and while nursing was healthy and in every way a normal baby, but since being weaned had never seemed to thrive very well. For several months it had been jaundiced, and had occasionally complained of pain and uneasiness in the belly.

I believe it to be a well-established fact that children do not have biliary colic, and while this child had a diminished appetite, there were very slight gastro-intestinal symptoms, as the case was described to me by the mother.

A few months ago the child began to show jaundice, for which it had received the classical treatment—acids, alkalies, salicylates, hot baths, etc.

On stripping the little fellow the belly was found to be very prominent. With the child in the prone position I could make out an enlargement extending to the left side and going down below the umbilicus. This enlargement was painless, smooth, and not nodulated, and it was evidently a very much enlarged left lobe of the liver.

The question arises whether this was simply a case of jaundice from obstruction due to some catarrhal trouble, with no gall stones, with a coexisting enlargement of the liver, or whether the trouble was due to congestion alone. I can hardly bring myself to believe that the case is as favorable as that, but am inclined to the view that the trouble may be malignant.

Diphtheria in London.—Dr. F. A. Dixey, Oxford, read a paper before the British Medical Association on Diphtheria in London. He said the amount of diphtheria present in London was still high, but was not diminishing, after temporary exacerbation in 1896. The interruption of the usual course of diphtheria mortality coincident with the two chief school-holiday periods was again apparent in both 1896 and 1897, and the new evidence, like the old, tended to show that school infection was an important, though not the sole factor in the spread of diphtheria. A considerable, but yearly diminishing number of cases of true diphtheria were still returned as croup, and his last point was that a marked diminution in the case-mortality of diphtheria which set in at the end of 1894, and had continued uninterruptedly up to the present time, was coincident with the employment of the treatment by antitoxin treatment.—*The Scotsman.*

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

OCTOBER, 1898.

Edited by FLOYD M. CRANDALL, M.D.,
Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician, Hospital for Scarlet Fever and Diphtheria; Consulting Physician, Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

THE STERNO-MASTOID TUMORS OF CHILDREN.

The causation of these little tumors has been the subject of considerable discussion. In these discussions the peculiar tendency of the human mind to seek an explanation for any phenomenon in "the soft atmosphere of mystery" has been clearly apparent. Instead of seeking an explanation based upon mechanical laws and obvious facts, some minds are prone to grope after the strange and mysterious. In the case of these tumors an explanation based upon mechanics is the only rational one.

They are discovered usually in the second or third week after birth and appear as smooth, rounded, hard swellings within the body of the sterno-mastoid muscle. They can be moved with the muscle from side to side only. They seem rarely to be painful, but when first discovered are in some cases sensitive to touch. The overlying skin is neither adherent nor discolored. There is usually a certain amount of torticollis, the face being turned away from the tumor.

The causation is shown in part by the frequency with which they occur after difficult or instrumental labor—in other words, labor which puts particular strain upon these muscles. They are especially common after breech presentations, two-thirds of the cases being associated with that condition. The tumor is then upon the right side. When following head presentations it is commonly found upon the left side. These facts are clearly explained by the common mechanism of labor.

In a highly interesting paper on wry-neck and sterno-mastoid tumors in children, in a recent number of the *Birmingham Medical Review*, Dr. Jordan Lloyd reports twenty-six cases; of these patients fifteen were boys, eleven were girls. In the case of sixteen, the right side was involved, in ten the left side. The author lays special stress upon the importance of these tumors in causing the persistent painless form of wry-neck seen in children.

Autopsies upon this condition have not been large in number but have been sufficient to establish quite positively the histological condition. Spencer found that microscopical sections showed clearly that there was rupture of the muscular fibres with effusion of blood. Witzel has shown that subsequent deformity is caused by the formation of contracting fibrous bands. Delafield and Prudden say that when muscle fibre is ruptured, repair usually takes place by the production of granulation tissue which gradually becomes converted into cicatrical tissue, thus binding the parts together. Lloyd describes the swelling in the later stages as consisting of bundles of white fibrous tissue, blending gradually with normal adjacent muscle fibres. It consists in fact of reparative material in the course of organization, and is thrown out in excess, as is seen in other parts where injured muscles, tendons, or bones are not kept at rest during their process of repair. Holt describes the tumors as due partly to blood extravisation and partly to inflammatory products. Like Rotch, Jacobi, and Davis, he classifies them under the head of *hæmatoma*.

These little tumors disappear spontaneously, being rarely seen after the third month. They require no treatment; surgical interference should above all be avoided. They are of no serious import, except in the small number of cases in which they are followed by torticollis, due to contraction of the muscle. That condition requires appropriate orthopedic management.

YELLOW JOURNALISM.

Many physicians of this country seem to be harassed by a consuming desire for what they denominate the "practical." To these men the "practical" article usually means one upon treatment or the management of disease. It is quite true that the ultimate aim of the medical man's effort is the cure of disease or the relief of suffering, but it is a very narrow view that regards only articles of the kind mentioned as practical. The doctor ought to be something more than a peripatetic disseminator of drugs and prescriptions. The article from the *post-mortem* room which renders diagnosis easier, and obscure conditions clearer, is as practical as an article on treatment. The report of the laboratory worker and physiological experimenter, which adds to our knowledge of the origin and cause of disease, is far more practical than a collection of prescriptions. While the treatment and management of disease is the ultimate object of the physician, it is an axiom that treatment cannot be judiciously planned nor, except by chance, effective, which is not based upon a correct diagnosis and a thorough knowledge of the condition to be treated.

We sometimes feel inclined to refer those doctors, so eager for the so-called practical, to certain daily newspapers of the yellow type. These journals contain each day a column devoted to medical subjects. Here one may find valuable hints for the cure of stomach-ache, the treatment of chicken-pox, and many things enumerated as *good* for children teething. This is the kind of knowledge that these gentlemen need. They have a keen scent for prescriptions, and value an article in proportion to the number it contains. These they try one after another because they are labeled as "good" for some particular ailment. A large part of these prescriptions are old and have long been floating among medical journals and works on therapeutics. While a part of them may be relied upon to kill, with more or less precision, the infants upon whom they are tried, others are not harmful, and some are really good.

The man who settles down to the use of these ready-made prescriptions, however, or to the use of ready-made proprietary medicines, is soon as far beyond reformation as the habitual drunkard. He loses not only the power, but even the inclination to turn from the error of his ways and lead a better life. He is content with the crudest empiricism. The enterprising manufacturer concocts a new mixture and tells him it is "good" for some disease, and he forthwith uses it. He sometimes stops here, fortunately, but in too many cases, after administering it to two or three patients, he writes to the journals about it. The general practitioner, it is true, should be encouraged to write more than he does and to report his interesting cases more freely. But the crude observations of men who draw sweeping conclusions from a few cases, or advocate treatment which has not received adequate trial, is to be condemned in the strongest possible manner. This is not "practical" medicine; it is *yellow journalism* in its worst form, and of all yellow journals, the yellow medical journal is the worst. Its sensationalism not only corrupts medical men, but endangers the safety of the community. It develops in its readers depraved tastes, and renders them incapable of enjoying the study of scientific medicine. It destroys the taste for better literature and renders it more difficult for reputable journals to live. Month after month these yellow journals contain no article that will live and be worthy of record, because they add nothing new to the stock of knowledge. Their articles are compiled or re-hashed from the works of other men, or worse than that, contain things that are untrue and are not based upon experience.

It has been the aim of this journal in every issue, to add something new upon the subject of pediatrics and thereby to be, in the true sense of the term, practical. Were it to exclude from its pages special scientific articles, it would be untrue to its most important aim and to its very name of *Archives.* That it has been true to itself in this regard is proved by the fact that every recent work on pediatrics has drawn liberally from its fifteen volumes, as numerous references through their pages will show.

The Archives of Pediatrics is in truth what its name indicates—a repository of pediatric knowledge and a record of pediatric progress, and not a primary text book on diseases of children, issued with the design of instructing those who are ignorant of its fundamental principles. No other English publication will so fully show the progress of pediatrics during the past fifteen years as will the Archives, and the loss of no other English publication would be so seriously felt by English-speaking pediatric workers and writers.

ANTI-VACCINATION IN ENGLAND.

The introduction into the House of Commons of the new vaccination bill and its subsequent passage must be a source of regret to Americans as well as Englishmen. The bill itself in all of its provisions, save one, is undoubtedly a wise measure, as it gives due consideration to the most recent knowledge gained regarding small-pox and vaccination. A single clause, however, practically annihilates all the vaccination laws of England. This clause, generally known as the "conscience clause," exempts children from vaccination when "any parent or other person can satisfy justices in petty sessions that he conscientiously believes that vaccination would be prejudicial to the health of the child." This sudden gaining of influence in the British Parliament by the anti-vaccinationists is a cause of some surprise. It is not for us in this country, however, living as we do in a glass house, to throw stones. A similar thing has occurred in recent years in a number of American legislatures. We had occasion to refer to this subject in these pages two years ago, when we gave an extended account of a century of vaccination. There is, unquestionably in this country at present, a rather strong anti-vaccination feeling in some quarters. This is largely due, we believe, to ignorance, but partially to the fact that human minds are so constituted that it is practically impossible to demonstrate any proposition, beyond the multiplication table, so clearly that it will be accepted by all.

It is satisfactory to know that almost the whole reputable daily press, both in this country and in England, are strongly orthodox on the subject of vaccination. The *New York Times*, for example, says that the question of vaccination has long since ceased to be an open question and is not one for discussion. It therefore, refuses to open its columns to certain anti-vaccinationists on that ground. It refers to the anti-vaccinationist as a familiar species of crank, whose utterances sensible folks long since ceased to heed. It deplores the present bill, introduced in an hour when the Anglo-Saxon race is feeling particularly proud of itself, but suggests that it may have been devised by Providence to warn us that the race has not yet developed to perfection.

The same journal a few years since, in commenting upon the formation of an anti-vaccination society in New York, used the following very pertinent language: "Every attentive observer of current events must have heaved a sigh of discouragement when he read that men and women, nominally sane, had met in this city and revived the old Anti-Vaccination Society. It is really a cause for humiliation, and perhaps for shame, that such a thing could take place here, and at this time, in the centre of our boasted civilization, and after the experience of a hundred years has left, in minds open to conviction, no more doubt of vaccination's incalculable value than there is of the good results that have followed the use of anticeptic methods in surgery. The formation of this society is not less disgraceful to the city than would be the trial of an old woman for witchcraft in the Court of Oyer and Terminer."

CONGENITAL DISLOCATION OF THE SHOULDER JOINT.

In 1890, Dr. Charles L. Scudder described in the pages of this journal, two cases of congenital dislocation of the shoulder joint, occurring in children of the same family. In a recent number of the *American Journal of the Medical Sciences*, he reports two other cases; one a true congenital dislocation of the shoulder joint, the other a traumatic dislocation of the shoulder joint occurring probably at birth. The skiographs which accompany the reports, render the article of great interest.

From the analogy of congenital dislocations of the hip-joint, it would seem that this shoulder deformity is probably due to a lack of development of the glenoid cavity and the head of the humerus; the skiographs support this view, that in the normal position for the glenoid cavity there is a rudimentary glenoid, and that the glenoid cavity occupied by the rudimentary head of the humerus is developed in an abnormal position, so that, as was suggested in the report of the original two cases, the term "congenital misplacement" of the shoulder joint would be a better term than congenital dislocation.

The operative treatment of true congenital misplacement of the shoulder joint cannot be formulated until the conditions existing are seen and handled in any particular case.

Infant Feeding.—It is really refreshing to see occasionally a labored article informing us of the dangers of mother's milk, and extolling some artificial food for infants. In most of these confidential communications we get the history of a case where a child is rapidly approaching dissolution, when, just in the nick of time, a sample, long lying idly on a dusty shelf in the office. is brought out and "given a trial"; when, lo, the result is almost magical! The child gains in weight at the rate of seven pounds in six days, and another life is saved for future usefulness. We would not wish to be thought unfavorable to any food, or other product, which is or may be useful in diseases of infants, but we do wish to register a protest against the "dum-dum" as a food for infants to the exclusion of that ancient diet, the mother's milk.—*St. Louis Clinique.*

Bibliography.

A Guide to the Clinical Examination and Treatment of Sick Children. By John Thomson, M.D., *Extra Physician to the Royal Hospital for Sick Children, London, Lecturer on Diseases of Children, Edinburgh School of Medicine.* In one crown octavo volume with 52 illustrations. Philadelphia and New York: Lea Brothers & Co.; Edinburgh: William F. Clay. Pp. xvi., 336. Price, $1.75.

This admirable work is based upon lectures delivered to classes of students and graduates who were attending the clinical teaching of the author at the Royal Hospital for sick children of Edinburgh. The subject is, therefore, approached from the purely clinical standpoint. It differs from anything that has yet appeared upon diseases of children and does not encroach upon any existing work. The book is, in fact, the author informs us, essentially supplementary, being intended to supply practical and useful information, which, combined with that contained in existing text-books, will be a help in the study and treatment of sick children. It contains many things not to be found in the text-books and is practical in the extreme.

In the introduction the author refers to the fact that the diseases of children are sometimes spoken of as a specialty. But he believes if it is to be regarded as a special field, it is certainly one that lies beyond that occupied by ordinary clinical medicine and not parallel to it. It is only through the latter that it can be properly reached. We are quite in accord with his belief that it is better not to begin the study of disease in children until familiarity with its symptoms in later life has been acquired. After such knowledge has been attained, the study of disease in infancy will explain many things which observation of the adult alone would leave obscure.

To be successful in practice among children the author wisely holds that the following qualifications are absolutely necessary to the physician:

"Firstly, he must, of course, possess a thorough grasp of the ordinary clinical methods.

"Secondly, a certain amount of tact is necessary to enable him to examine the patient without arousing active opposition. Many have this tact instinctively; some only acquire it in the requisite degree with time and experience ; while to those who have no liking for children and are out of sympathy with them, it may never come at all.

"Lastly, he must make himself familiar with the chief anatomical and physiological peculiarities of childhood, so as to know what is and what is not within the normal limits ; and he must have some knowledge of the nature and causes of the diseases commonest among children."

The first chapters are devoted to the subject of growth and development, and contain many facts of great interest not to be found in ordinary text-books. Upon the debated subject of teething and its effects the author very wisely remarks that we shall be nearer the truth if we avoid both extremes. "There can be no doubt," he says, "that teething is not in itself a cause of death, and that its influence in producing and predisposing to disease has been enormously exaggerated. At the same time it is equally certain that teething, like menstruation, pregnancy and other natural states, is often accompanied by marked symptoms, both local and reflex, and like them may produce temporarily a tendency to disease which is not present at other times."

The chapter on physiognomical diagnosis is worthy of particular mention. The same is true of all the sections devoted to the detection of disease by inspection. The various diseases peculiar to childhood are considered purely from the standpoint of diagnosis. The chapter on infant feeding is short but concise, and on the whole very satisfactory. It contains, however, one error in our opinion—that of too apparent reliance upon one or two definite mixtures. In view of the progress recently made in infant feeding, it seems to us an error to even introduce in such an article the formulæ for "Meigs' mixture" and "Rotch's mixture." We believe, in fact, that Dr. Rotch is not particularly pleased to have any set formula designated by his name. Dr. Rotch's "method" is *modified milk*, which does not consist of a set formula, but rather an infinite number of formulæ, the formula in each case being adapted to the individual infant. The chapter on nursery hygiene is short but extremely good.

The latter portions of the book are devoted more strictly to the therapeutics of childhood and infancy and to food disorders. This portion of the work is extremely practical and worthy of high commendation. On the whole, the book is an important and very valuable contribution to pediatric literature.

Society Reports.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON ORTHOPÆDIC SURGERY.

Meeting of April 22, 1898.

THE TREATMENT OF RACHITIC DEFORMITIES.

Dr. R. H. Sayre read a paper with this title, of which the following is an extract:

Patients affected with well marked rachitic deformities would not "out-grow" them. Treatment should be active and should vary with the pathological stages of the affection. In acute rickets cod-liver oil would be of great benefit, and phosphorus in the elixir of the national formulary would yield good results, given three times a day in doses as large as the 50th of a grain. When the bones were soft they should be subjected to manipulation and the child should be kept in the recumbent position, which is best done, if there are spinal deviations which require special attention, by the use of the wire cuirass. The two great aids of fresh air and sunshine would thus be invoked and would be not less effective than treatment by the use of drugs. Instruments should be applied in order to retain the improved position secured by manipulation. In decided knock-knee or bow-legs, if the bones are not too hard, the deformity might be corrected by the plaster of Paris bandage changed in shape and in the degree of its pressure from time to time by cutting out a section of the plaster at the point of greatest deviation, inserting a wedge in the cut and applying additional plaster to retain what is gained. In similar cases of coxa vara, depending on a rachitic process in adolescence, the deformity could be overcome by traction in the recumbent position. When eburnation was established, efforts to correct deformity by manipulation or by instruments would be a waste of time, and the osteoclast or the chisel should be used, the latter when the division was to be made near a joint, and the former when the force was to be applied at a point an inch or more removed from the joint. In some extremely rachitic subjects, non-union followed an operation from delayed formation of new bone cells due to eburnation and impaired nutrition. A not uncommon manifestation of rickets was seen in pigeon-toes, the result of an instinctive turning in of the toes to avoid receiving the weight of the body directly on the weakened tissues of the foot. Injudicious efforts to induce the toes to turn out might lead to flat-foot and increase the usually present tendency to knock-knee.

Dr. S. Ketch had used phosphorus in the treatment of rickets for twenty years with excellent results. He preferred a compound syrup of the hypophosphites containing lime, iron, potash and soda without strychnine. Manual force was of benefit in nearly all cases, especially when the patients were off their feet. When they began to walk, gratifying results would follow the employment of the usual bow-leg and knock-knee apparatus. Unless there were exceptional reasons for protecting the spine, he would not use any restraining apparatus like the cuirass for recumbent patients. Time should not be wasted in waiting for the patient to "grow out" of the deformity.

Dr. A. M. Phelps said that at the beginning of the treatment the patient should be taken off his feet and if the bones were not hard we should bend the bones, producing perhaps a green-stick fracture and thus straighten them by manual force. Bones that had become sclerotic, required osteoclasis or osteotomy. The latter should never be done in children under twelve years of age, unless demanded by some unusual condition, and in all cases osteoclasis should, as a rule, be preferred to osteotomy. Non-union was found only after osteotomy, and it was attended with some danger; deaths have been reported, whereas these accidents never occurred from osteoclasis.

Dr. Ketch opposed operative procedure in the early stage. The experience of the past and of the present day showed that manual force and mechanical treatment were sufficient to effect a cure. A speedy rectification of the deformity by an operation was misleading, because the time required by the mechanical treatment after the operation was as long as it would have been if no operation had been done. In no way except mechanically, could the child be protected against a return of the deformity.

Dr. A. B. Judson said that in orthopædic practice, operations should, as a rule, be avoided. The patients were children and the question of time was unimportant. If pressure was applied in the direction opposite to the deformity, and due time and attention were given, the natural growth was a curative agent. If treatment was begun early and the patients were taken off their eet, the deformities of rickets especially, were curable by mechanical methods alone.

Dr. R. Whitman said that the slight deformities of children should receive more attention than was customary. He had observed that pigeon-toes were, as a rule, symptomatic of rachitic knock-knee or flat-foot, and represented an effort of nature to restrain deformity. Many cases of coxa vara had their origin in infantile rickets. The deformity of the femoral neck was latent in childhood. During adolescence, the neck, being from its depression subjected to greater strain, gave way, and deformity and disability followed. In the same way adolescent knock-knee was in many instances an exaggeration of a slight deformity in infancy. In extreme cases of coxa vara he thought that restoration of abduction by division of the neck of the femur was generally required, and that in any kind of a case simple extension would not often be effective.

Dr. C. N. Dowd said that after osteotomy above the femoral condyles, he had found that the corrected position could be perfectly maintained by carrying the plaster of Paris to the upper part of the thigh instead of enclosing the thorax. A towel was put between the knees, and the feet were tied together. Cleanliness was thus promoted and the children sat up in bed, ate in comfort from a tray and could play with toys without interfering with treatment during the period when the bone was uniting.

Dr. Whitman preferred the double spica of plaster of Paris, which insured absolute fixation, and in the routine of hospital treatment had not entailed undue inconvenience or unpleasant consequences.

Dr. Sayre said that an early diagnosis followed at once by active treatment when the tissues were soft and ready to yield to moderate pressure, would prevent a great deal of trouble at a later stage when eburnation would require that the deformity be reduced by forcible procedures. He thought that a child could not be kept in bed very well without some little apparatus. If the cuirass was objectionable, put on a pinafore and fasten it here and there to the bed, and thus bring the child to anchor. In serious cases the cuirass or Bradford's frame was a great convenience. Children in them are like little wooden images, and they live in them for two or three years; are happy and comfortable, and have their toilets made without any great bother to the nurses. Apparatus was very useful to hold the bones in position after they had been brought to a straight position, but to bring them to a straight position, apparatus was not nearly so efficient as putting them up in plaster of Paris. It was simply a question of leverage, and he had found that leverage was more accurately applied by the use of plaster of Paris than by any other means.

Nervous Lesions in Gastro-Enteritis.—E. Müller and Manicatide have published a preliminary note (*Deut. med. Woch.*, March 3, 1898) on the changes observed in the nerve cells of the brain and spinal cord in cases of gastro-enteritis in infants. The changes were of a degenerative character, and affected nuclei as well as the cell substance. They varied in intensity in different cases and in different areas in the same case. Neither the present or absence of fever, nor the duration of the illness, appeared to have any relation to the severity of the cell degeneration. The observation, as the authors point out, illustrates the extent of the toxic effects produced by gastro enteritis. —*British Medical Journal.*

Operative Treatment of Congenital Umbilical Hernia in the New-born.—K. Hedman (*Finska Läkaresällek. Handlingar*, December, 1897) has operated upon a case of congenital umbilical hernia in a new-born infant. The hernia was of the size of the little finger, and contained liver and small intestine, which could be seen through the transparent sac wall. Attempts at taxis proved that the abdominal cavity could contain the herniated organs. The little patient, who weighed 3,600 g., was put under chloroform, and a needle with a silk ligature was passed through the skin elevation, and the silk was gradually tightened as the contents were returned to the abdomen. The umbilical vessels in the sac wall were separately ligatured. The hernial pouch was then cut off, and the wound closed with silk sutures. The operation, which lasted an hour and a half, was successful, but was followed by the development of a bilateral inguinal hernia.—*British Medical Journal.*

Current Literature.

MEDICINE.

Wentworth, A. H.: Observations on Meningitis in Infants and Children. (*Boston Medical and Surgical Journal.* 1898. Vol. cxxxviii., Nos. 11–14.)

In an extended article on this subject the author reports in detail eleven cases. These reports include not only the clinical reports, but also the autopsy and microscopical and bacteriological examinations.

The author holds that primary *cerebro spinal meningitis* is caused by the diplococcus intracellularis meningitides. The manner in which infection occurs is still unknown. Nothing positive is known about the contagiousness of the disease, or the duration of the stage of incubation. The disease occurs epidemically and sporadically. It is rare in infants under one year, and in children occur most frequently between the ages of three and ten years.

Pathology.—The lesions consist of an inflammation of the pia-arachnoid. The exudation is confined in the meshes of the pia; none is found on the surface of the arachnoid. In the most acute cases the exudation is slight in amount and purulent. In acute cases of longer duration there is more fibrin in the exudation. The pus cells are contained in the distended meshes of the pia. Large cells, derived from proliferation of the cells of the lymph-spaces and from the connective tissue corpuscles, appear. These cells are phagocytic and often inclose numbers of the exudation cells within them. In the very chronic cases the membranes are thickened. The exudation is slight in amount and is marked only by circumscribed whitish foci. The cells in these foci are degenerated and do not stain well. The ventricles are always distended. The ependyma is softened and frequently ragged. The fluid is cloudy and a small mass of fibrin or pus is always found in the posterior cornua of the lateral ventricles if the body has lain on the back.

The changes in the brain consist of softening and infiltration of the cortex with pus cells, which extend in from the meninges, and of foci of softening in the interior of the brain. There is also some proliferation of the neuroglia cells of the cortex. The exudation extends along the cranial nerves. The nerves most affected are the second, fifth, and eighth pairs. The meninges of the cord are always affected and the exudation is found chiefly in the meninges of the lumbar cord over the posterior surface. The inflammation extends along the spinal nerves to the spinal ganglia.

Symptoms.—Prodromal symptoms are usually absent. The onset is sudden and frequently severe. In most cases the earliest symptoms are headache, vomiting, and fever. The latter may be quite high at first. Convulsions are not uncommon in young children at the onset, but they rarely occur later in the disease. Vomiting may be repeated several times, but usually ceases after the first day. The headache persists and is often very severe. The initial symptoms are rapidly followed by pain and tenderness in the neck and spine. Oftentimes these latter symptoms begin within twenty-four hours of the onset. At times they are not marked for two or three days. There is always more or less mental disturbance which may begin with the initial symptoms. It varies in intensity from apathy to unconsciousness. It is practically always present to some extent within twenty-four hours from the beginning of the disease.

Some patients become actively delirious, but as a rule they remain quiet and stupid unless disturbed. The pain and tenderness in the spine increases rapidly. The head is usually retracted and held rigidly. General hyperesthesia is a quite constant symptom and appears early. Variations in the degree of retraction, hyperesthesia and mental disturbance from day to day are characteristic of the disease. The temperature deserves especial attention. It is rarely more than *moderately* elevated and pursues a very irregular course. It is often below 103° F., and if it rises to 104° F. it rarely remains so longer than a few hours. Variations of several degrees are apt to occur from day to day. It may be classified as a remittent type of continued fever. The contrast between the severity of the nervous symptoms and the moderateness of the temperature is striking and characteristic. The pulse is usually higher than is commensurate with so moderate a fever. The respiration, as a rule, is somewhat increased in rate.

Dilatation of the pupils is very apt to occur within a day or two of the beginning of the disease. The reaction to light is usually slow and incomplete. Paralysis of one or more of the ocular muscles is common, but is often temporary, and the paralysis may effect different ocular muscles at different times. Paralysis of other portions of the body is uncommon during the course of the disease.

More or less conjunctivitis almost always occurs, and not infrequently severe lesions of the eyes, such as optic neuritis, iritis, and more rarely, choroiditis.

Deafness is not infrequent. The occurrence of herpes, usually about the mouth or on the cheeks, is observed in a number of cases after the disease has lasted for several days. Constipation is a constant symptom. After several days the abdomen becomes more or less retracted. The *tâche cérébrale* can be obtained in most cases. The urine not infrequently contains albumin, usually not more than a trace. Emaciation is a marked symptom in the cases in which the disease lasts longer than a few days. In most of the cases which end fatally, the patients die quietly, notwithstanding the severity of the symptoms which precede the fatal termination.

Complications.—The commonest complications are lesions of the eyes and ears. The lesions in the eyes result from extension of the inflammation along the optic nerves, often causing optic neuritis and atrophy. The resulting blindness may be partial or complete. Some of these cases recover their sight, to some extent, even after the occurrence of symptoms of optic atrophy. The lesions in the ears are due to extension of the inflammation along the auditory nerves, and may result in total and permanent deafness. Quite a number of cases have acute inflammation of the middle ear. The inflammation is said to be caused by the diplococcus intracellularis in some cases. If this is true, it is probable that the organisms reach the middle ear through the Eustachian tube, because the diplococcus intracellularis has been found in the nasal cavities in some cases. Lesions of the lungs are not common, but focal pneumonias have been found in some cases. In some of these cases the diplococcus intracellularis has been found, but other pathogenic organisms are generally present. Lesions of the heart and kidneys are very uncommon. General infection by the intracellular diplococcus is practically unknown. Now and then joint lesions are observed, consisting of swelling, redness of the skin and pain. The nature of the lesion is not known. The symptoms usually subside after a day or two.

Several well-marked types of the disease occur. They have been classified as foudroyant, acute, intermittent, chronic, and mild cases.

Foudroyant cases begin with the same sudden and usually violent onset of fever, headache and vomiting and perhaps convulsions. These symptoms are rapidly followed by stupor, and even unconsciousness in some cases. There is usually high temperature; a very rapid pulse; a grayish septic looking color of the skin; oftentimes multiple small hemorrhages into the skin; and death in a comparatively few hours. Retraction of the head and rigidity and pain in the spine may or may not be present in these cases. The clinical picture may resemble septicemia or toxemia more than meningitis, and death may occur before macroscopic evidences of exudation appear in the meninges, so that at autopsy, one finds simply excessive injection of the vessels and edema of the meninges. Microscopically, however, one detects the evidences of inflammation by the presence of leucocytes infiltrating the meshes of the pia; more or less coagulated serum and fibrin; and a varying number of red corpuscles.

Intermittent cases differ from acute cases in having one or several acute exacerbations with intervals of several days between. During these intervals the severe symptoms disappear and the patient appears to be much better. The temperature may be normal, or remain more or less elevated, but the pain and tenderness subside; the intelligence becomes normal and the patient appears to be convalescing. This is followed by a return of the acute symptoms: retraction, stupor, tenderness and fever, which last for several days as before. Sometimes two or more of these acute exacerbations occur. The intervals between the exacerbations rarely exceed a few days, oftentimes not longer than two or three; but a guarded prognosis should be given in all acute cases of epidemic meningitis for at least two weeks after the cessation of active symptoms.

Some cases die during an acute exacerbation; others recover after one or more attacks and in some cases a chronic form of the disease develops, which may terminate fatally or be recovered from. Emaciation is a marked symptom in the intermittent cases.

Acute cases run their course in from two to ten days. Quite a large proportion of them end fatally. One observes individual variations, some cases present symptoms which are absent in others. In general, however, the sudden onset with vomiting, headache, fever, pain and tenderness in the neck and spine, retraction of the head, hyperesthesia and varying degrees of mental disturbance from apathy to unconsciousness are present in all. The temperature is usually moderately elevated and irregular in type. The pulse-rate is more or less increased. In some cases which end fatally, the temperature rises before death several degrees higher than at any preceding time. In cases which recover, the temperature falls gradually and the symptoms subside after several days, and the patient appears to make a complete recovery. If severe lesions of the eye and auditory nerve have occurred, the blindness and deafness may be permanent, although marked improvement has occurred in a number of cases of severe optic neuritis.

Chronic cases last from eight to ten weeks, or even longer. This form has the usual acute onset followed by severe symptoms lasting for several days. Then the temperature falls gradually and remains either normal, subnormal, or slightly elevated for weeks. The symptoms of retraction, tenderness in the neck and spine, hyperesthesia and more or less mental disturbance persist most of the time, although these symptoms vary very much in intensity from day to day. The emaciation becomes extreme and the patient grows weaker and weaker. The pulse is often considerably increased in rate. Complications in the heart, lungs and other organs are exceedingly rare, with the exception of the eyes and ears. Optic neuritis is not uncommon, and deafness not infrequently occurs. Paralyses, aside from the ocular muscles, are uncommon. When death occurs it is, as a rule, unexpected, and takes place quietly. In some cases paralysis of respiration occur without any terminal rise in temperature, or symptoms of infection. The clinical picture of these cases suggests nerve degeneration as a cause of death. The cases which recover are often permanently blind and deaf and mentally impaired.

Mild cases begin with the same sudden onset as the other varieties, followed by more or less pain, retraction, stupor, etc. The symptoms subside after two or three days and the patients recover. During the first day or two it may be impossible to determine that the disease is going to pursue a mild course.

Lumbar Puncture.—The fluid obtained is more or less turbid. In severe acute cases, a puriform deposit frequently settles to the bottom of the test-tube in a short time. Microscopic examination of cover-glass preparations made from the sediment shows numerous polymorphonuclear leucocytes, "pus corpuscles," occasional smaller mononuclear lymphoid cells and fibrin. Groups of the diplococcus intracellularis are found in varying numbers in the protoplasm of some of the leucocytes.

The macroscopic appearances of the fluid are not to be relied upon in all cases. A very slight admixture of blood will render the fluid turbid; and if sufficient blood is present, a web of fibrin forms in the fluid after standing. Hence it is necessary to make a microscopic examination in all cases. If blood, or bloody fluid appears at the end of the needle, it is well to allow the fluid to escape until a clear drop appears. It is rarely necessary to allow more than a cubic centimetre to escape in this way.

Inoculation experiments are, as a rule, unsuccessful. The organism is not pathogenic for guinea-pigs and rabbits. Goats are susceptible to it.

Dupeu: **Acute Nephritis in Children.** (*Journ. de Méd.*, 1897. *British Medical Journal.* 1898. No. 1932.)

The author has collected a large number of cases of acute nephritis in children. He finds that the affection is in reality more common than is supposed, but fortunately the disease is much more hopeful in its prognosis than in adults. The author looks upon measles as a more frequent cause than is supposed by some authors, for it is definitely stated by some that it is extremely rare in this condition. Irritation and absorption from the skin would seem to be a cause of acute nephritis; thus blistering, the application of turpentine, carbolic acid, etc., may produce nephritis, and it has been known to follow burns, severe electrisation, too hot baths, and inflammatory conditions as eczema, erysipelas, impetigo. Chicken-pox has also been observed to cause nephritis, as first pointed out by Henoch. Others consider it exceptional, but the author quotes Descroizille as stating that the most frequent complication of varicella is nephritis. These cases all seem to terminate favorably. Post-vaccinial nephritis is also described, and acute inflammation of the kidney may even follow tonsillitis, and a case is quoted in which a recurrent tonsillitis was always accompanied by acute nephritis. Lastly, the author states that nephritis may be the result of ordinary gastro-intestinal intoxication, more particularly when there is dilatation of the stomach. This has been observed in children as young as eleven to sixteen months fed by the bottle, and in whom vomiting and diarrhœa were prominent symptoms. In these cases there is very marked abnormal fermentation taking place with the production of more or less toxic products which when absorbed are competent to produce nephritis. The duration of these cases varies from two to four weeks, and may be accompanied by all the usual signs of Bright's disease.

Chapin, Henry D.: Instruction in Diseases of Children. (*Medical Record.* 1898. Vol. liii., No. 19.)

Pediatrics properly forms one of the branches of general medicine. It deals with the general diseases of the body at a time of rapid growth and development, when the great physiological activity is apt, upon slight provocation, to become pathological. Although special study is required to recognize and properly treat the peculiar forms disease may take at this time of life, it is with the whole organism, and not with any single organ, that pediatrics is concerned. Hence its kinship is with general medicine rather than with any specialty. The lamented O'Dwyer, whose name will be longest remembered among the present workers in pediatrics for what he accomplished, was always a general practitioner. While pediatrics should not be looked upon as a specialty, it certainly requires special study, as hinted above, to attain proper expertness in diagnosis and treatment. Some diseases are practically confined to early life, while others assume a peculiar type at this time. The physical and rational signs of disease also differ widely from adult life. While these facts are mere truisms to those who have given thought to the subject, the schedules of our medical colleges do not show an appreciation of their importance. It is certainly true that a good proportion of the men who are yearly graduated are in more or less ignorance of the branch of medicine that will form the most important and vital share of their future practice.

It is equally true that more mistakes are made in dealing with infants and young children than in any other branch of medicine. When the college course could be compassed in two years, there might have been some excuse for neglect of this vital branch ; now that three and four years are properly employed in study, it is inexcusable. That the colleges do not appreciate the importance of a thorough teaching of pediatrics is recognized most strikingly in examining candidates for hospital appointment, where the best men are apt to appear. Recently the writer examined thirty-five men upon diseases of children—candidates for positions in one of our large hospitals. These thirty-five candidates came from ten colleges situated in various parts of the country. The majority, however, were recent graduates from the large colleges of Boston, New York and Philadelphia. They were bright looking, apparently well posted in general medicine, and were probably above the average output of their colleges. Upon pediatrics, however, they all stumbled badly. Not one could give, in a proper manner, the physical signs of empyema in a young child; they all gave the signs that might be looked for in an adult. From the examination it is fair to suppose that all would have overlooked a common, insidious, and fatal disease of early life. And so with all the other questions. They apparently were fairly posted upon the physical and rational signs of disease in adults, but had no conception of the frequent changes of these signs in early life. They answered properly what they had been taught, and then were dumb. Another recent experience exemplified the young graduates' poor training in pediatrics. The writer, as one of the examining board, listened to the replies of candidates for the position of interne in a hospital for infectious diseases. There were four simple but comprehensive questions, as follows: symptoms of measles; complications and sequelæ of scarlatina; causes of death in diphtheria; tests for albumin in urine. None of the eight candidates gave any evidence of thorough training and instruction upon the first three subjects. One of the most promising-looking men replied that high temperature and œdema of the glottis were the causes of death in diphtheria, and no amount of gentle proding could make his knowledge expand upon this important topic. This abundant ignorance on the part of graduates will continue until the colleges give proper attention to pediatrics. The fault is not with the teachers, but with the schedule. One clinical lecture a week in the last year, with possibly a little dispensary work, is not sufficient. A regular didactic course of instruction, fortified by thorough quizzing, should be the foundation. Later on, the clinical lecture and section demonstration will serve to clinch and apply the knowledge already gained. Aside from the special information thus pro-cured, the training in and for general medicine will be of great value. Until the colleges get rid of the idea that pediatrics is to be classed upon their schedules with diseases of the eye and ear or the nose and throat, the defect will continue. These valuable branches are taken up last, as a sort of accomplishment, but diseases of children form a necessary and fundamental equipment for the average practitioner and should be so treated. As it is, most young men on graduation go out to cope with what will probably prove the largest part of practice with the same amount of instruction that has been bestowed upon the extreme specialties. Unfortunately, this lack of early training is often never made good, as those who are teaching in our post-graduate institutions can testify.

Variot and Peyré: Two Cases of Addison's Disease in Children. (*Journal de Clin. et de Therap. Infantiles.* Vol. v., No. 30).

One of these affected a boy of fourteen and a-half years, small for his age, and never very bright at school. His father had died of tuberculosis. At thirteen, the symptoms of Addison's disease developed, and grew steadily more pronounced. The bronzing of the skin was deepest over the back of the hands; the neck and face were also very dark. The heart and lungs were negative; pulse regular, 68 per minute. A blood count showed that the red cells numbered 4,281,000 per cubic millimetre, and the white 13,020. The urine was clear, yellow. faintly acid; specific gravity 1,009, no albumin. Treatment consisted of hypodermic injections of supra-renal extract.

The second case was that of a girl of fifteen, whose family noted the disease only a few months before, when the bronzing of the skin had become intense. She came under observation for a gastro-intestinal crisis, in the course of which the nervous excitation and delirium became so marked as to suggest meningitis. Fever was present, and the attack remained beyond control until supra-renal extract was injected hypodermically, when it began gradually to improve. While the occurrence of these crises is well known in the course of Addisonian cachexia, this one was unusual on account of the fever and the nervous symptoms. A third case, recently reported by M. Variot, is referred to. It also occurred in a boy of fourteen, and thus emphasizes the fact that these cases are often seen at puberty, but rarely in early childhood.

Hastings, Robert W.: Vaccine Rashes. (*Annals of Gynecology and Pediatry.* 1898. Vol. xi., No. 3.)

The author reports two peculiar cases of eruption following vaccination and quotes at considerable length the opinions oi various authorities upon the occurrence of vaccine rashes. The eruption generally begins on the arms, though the face, trunk or neck may be the parts first affected. It spreads by successive spots over the whole body and lasts for a few days, a week, or even longer.

Osler says: "In debilitated children, there may be with this cellulitis (of the arm) a purpuric rash."

Anders says: "Quite frequently the axillary glands are swollen and tender."

Wood and Fitz say: "Swelling of the neighboring lymphatic glands is common and may be troublesome."

Speaking of post-vaccine eruptions, Holt says: "There may be urticaria, erythema or a general roseola which often resembles the eruption of measles and occasionally purpura has been seen."

Duhring only says: "Vaccination is now and then followed by peculiar erythemataus, pustular or furuncular eruptions."

Pepper makes essentially the same statement.

Epstein, quoted by Wilson and Eshner in Sajou's annual for 1894, cites two cases of purpura and fourteen of erythema developed in the course of 430 vaccinations.

"The erythema resembled the exanthem of measles." The eruption appeared between the fourth and eleventh days after vaccination, developed in twenty-four to seventy-two hours, and persisted six or eight days.

Rotch: "In a certain number of cases, instead of the regular progression of the vaccine disease with its characteristic development in a single lesion of the skin, the virus appears to give rise to the original disease, cow-pox (vaccinia).

"Vaccinia is characterized by the appearance of papules, vesicles and pustules of different sizes in different parts of the body and limbs as well as on the face, and running a definite course. Vaccinia is in my experience a rare disease; its lesions, when following vaccination, appear at about the fifth day after the innoculation.

"Various efflorescences at times appear on the skin, not only in the neighborhood of the vaccination lesion, but also in other parts of the body. They may be present on the fourth or fifth day, or even later, in the second week and are probably caused by some reflex connection with the vaccination lesion. They vary considerably in form, but are usually represented by a multiple or papular erythema or an urticaria."

Osler: "Among the more common complications are certain skin eruptions, some of which are due to the vaccine virus; others result from a mixed infection. More frequent than the generalized vaccinia is the erythematous or roseolous rash."

Bartholow: "An eruption of roseola may take place, or a papular eruption, a lichen, may appear."

John W. Moore, of Dublin, Ire.: "The axillary glands may also swell and rashes may also show on the skin—either a blush (vaccinal roseola), or a crop of papules (vaccinal lichen), or a vesicular rash (vaccinal herpes). In normal cases, all these symptoms subside in a few days."

Westcott, in Starr's "Diseases of Children": "Various roseolous rashes may be observed during the maturition of the pock, and are only important as requiring differential diagnosis from intercurrent affections, such as erysipelas, scarlatina and rubella."

Anders: "An erythematous rash is not uncommon and appears, if at all, about the sixth day."

Wood and Fitz: "Local dermatitis and erythematous or roseolous rash may accompany vaccination, probably without being the result of any special infection."

Wilson: "Rare eruptions have been described under the name of 'Vaccinides'; these are roseolar, miliary, scarlatinoid, lichenoid, urticarial or generalized vaccinia."

Stewart: "Vaccination is often accompanied or followed by a papular eruption which will soon disappear and need cause no alarm."

Kassowitz: Tetany and Autointoxication in Childhood (*Wiener Med. Presse.* 1897. Nos. 4 and 5. *International Medical Magazine.* Vol. vii., No. 3.)

The author does not believe that autoinfection can be a cause of tetany. In the summer months, for instance, a time at which the digestive diseases are abundant, tetany rarely occurs, increasing, however, as the autumn and winter months advance, and being most frequent in the spring. He considers that the chronic intestinal affections bear no causative relation to the condition. The dyspeptic, the constipated, and the marasmatic children remain almost entirely free from tetany. He believes that the connection between rachitis and tetany is established; their yearly curves are almost the same. The children who sicken with tetany in the first year of life, and both diseases preponderate in the first two years, suffer almost always from rachitis, while cases of autointoxication are not decreased at this age. In addition to these facts, the phosphorous treatment will not check autointoxication, while it has a decidedly favorable influence upon tetany.

The explanation of the connection he finds in the inflammatory condition of the growing bones, in the hyperemia of the bones of the skull, which further conducts itself to the cerebral cortex to seek an irritated condition of the cortical centers, and, for the development of typical tetany, to adopt an especial center.

Schweiger: Lithiasis in Childhood. (*Jahrbuch für Kinderheilkunde.* B. xlv., H. ii, iii).

Eight cases were seen by the author, ages ranging from two and a-half to nine years. In five, the stone was in the bladder. In three, impacted in the urethra.

The symptoms were very similar to the adult, being as follows: Painful micturition, retention, incontinuence, hæmaturia, cystitis, and albuminuria (in one). Two of the patients developed a peculiar gait, similar to children with talipes varus, with the body bent forward. In two, the stones could be palpated above the symphysis. For the removal of the stones, the suprapubic operation was performed. All made satisfactory recoveries. Operation in one case was refused. The child died in two months.

Concerning three cases in which the stone was situated in the urethra, two suffered from acute retention and convulsions. In one, a positive diagnosis could not be made with the sound. A resistance was encountered in the deep urethra. Nothing more definite could be made out. After a protracted warm bath, two stones the size of peas were passed. In the second case, the stones could be felt through the perineum, and were also passed through the assistance of a warm bath. The third case was in a nine months' old boy in whom the scrotum perineum and penis were greatly swollen and very painful. A fluctuating point in the perineum was incised. With the pus removed, there was a stone the size of a pea. The incision healed in eight days.

Morti: The Diagnosic and Therapeutic Value of the Lumbar Puncture. *Archives für Kinderheilkunde.* B. xxiv., H. i., ii., 1898).

The report includes the author's observations made upon twenty-one cases.

Fifteen cases presented typical symptoms of basilar tubercular meningitis. Five were cases of epidemic cerebro-spinal meningitis, and one was a case of acute hydrocephalus following cerebro-spinal meningitis. Of the tubercular cases, two were punctured once each. Eight were punctured twice. Three were punctured four times.

The amount of fluid removed at one time varied from five to 115 c.c.m. In the majority the amount ranged from twenty to fifty c.c.m. In no case did harm result from the puncture. The operation was always performed under anticeptic precaution with anticeptic instruments. The fluid was not aspirated, but allowed to escape slowly or rapidly, depending upon the pressure. The fluid was always clear, and no tubercle bacilli was found in the specimens obtained.

Guinea pigs were inoculated into the peritoneum with the fluid from two of the tubercular cases. The temperature arose to 38° C., but subsided in a few days. In four weeks from the time of the inoculation the animals were killed and found to be free from tuberculosis. The effects of the withdrawal of the fluid were variable. The first puncture apparently exerted no influence on the pressure symptoms. In some of the cases, when considerable fluid had been removed, the stupor and the contracture were lessened, but returned in twenty-four to forty-eight hours.

In a few the temperature arose to 39° C., or 40° C., immediately after the puncture. The rise was temporary, however, and returned to the normal usually in twenty-four hours.

Inasmuch as the search for the tubercular bacilli in the cerebro-spinal fluid was negative, and the attempt at inoculation a failure, in cases that upon autopsy showed tubercular meningitis the author looks upon the Quincke puncture as of little diagnostic worth in tubercular meningitis. His results as a therapeutic measure were equally unsatisfactory.

Of considerably more value is the lumbar puncture in epidemic cerebro-spinal meningitis. The puncture was made in all five of the cases. In one only was it made for diagnostic purposes. In this case 10 c.c.m. was obtained. It was cloudy and contained pus cells. Through the means of a culture capsule-cocci were discovered. The autopsy confirmed the diagnosis. In another case, two punctures were made at considerable intervals. At the first operation 15 c.c.m. of cloudy fluid was obtained which, upon microscopic examination and culture, showed pus cells and capsule-cocci. The case developed signs of hydrocephalus, and after an interval of several weeks, the second puncture was made and 15 c.c.m. of clear fluid withdrawn, which proved to be negative.

The diagnosis of hydrocephalus was later confirmed in the autopsy.

In the third case, two punctures were made in rapid succession. The fluid withdrawn was cloudy, showing the pus cells and the capsule-coccus. The second was opalescent and contained a few pus cells only. After an illness of eight months the child recovered.

In the fourth case, two punctures were also made, the first during the second week of the illness. The fluid was cloudy and contained the pus cells and the capsule-coccus. Eight days later the second puncture was made, the fluid removed being clear, and containing no pus cells. The culture was also negative. After an interval of eight days, the fever reappeared, and the child seemed to be quite ill generally, with symptoms of hydrocephalus. The nature of the symptoms was not given. The third puncture was now made, and 30 c.c.m. of fluid withdrawn. The examination was negative. The autopsy showed that the diagnosis of hydrocephalus was correct.

The fifth case recovered through the means of two punctures and internal medication. At the first puncture 30 c.c.m. of fluid was withdrawn containing pus cells. The culture was negative. Three days later the second puncture was made and 20 c.c.m. of clear fluid withdrawn. The medication consisted of sodium hydro-iodide and diuretin.

Puncture in the case of acute hydrocephalus following cerebro-spinal meningitis showed a clear fluid which was found negative in every respect. The autopsy on this case confirmed the diagnosis which was made unaided by the cerebro-spinal fluid. The author concludes as follows:—

I. In tubercular meningitis the punctures were without diagnostic or therapeutic value.

II. In cerebro-spinal meningitis the examination of the cerebro-spinal fluid is of assistance in determining the diagnosis.

III. In cases of cerebro-spinal meningitis in which the acute stage is passed with resulting hydrocephalus, the examination of the cerebro-spinal fluid renders no assistance.

Boyer: Muteism Without Deafness in a Child. (*Arch. de Neurologie,* Vol. iv., No. 19).

The boy, six years old, was semi-idiotic, and became mute at the age of two, after an attack of convulsions. He was treated and educated at the national institutions for deaf-mutes in Paris, and at the end of two years he could speak so as to make himself understood perfectly, although the articulation was slow. His general appearance had improved very much, all his movements were more sure and supple, and his manners were good. He had learned to write passably well and had begun to read and to calculate. In spite of this interesting and marked result, the education of the child should continue to be a special one, supervised with the utmost care.

Vickery, Herman F.: A Case of Infantile Anemia, with Greatly Enlarged Spleen. (*Medical News.* 1897. Vol. lxxi., No. 23.)

In studying this case the author found that the number of red corpuscles was larger than in pernicious anemia, that the case certainly was not one of lymphatic leukemia, and that the number of white cells was too small for splenic-myelogenous leukemia. Myelocytes and nucleated red corpuscles are seen in both pernicious anemia and splenic-myelogenous leukemia. He quotes Dr. Hewes as saying: "The presence of myelocytes in numbers, with the pernicious anemia-type of blood, always suggests to me that the two diseases, pernicious anemia and myelogenous leukemia, are but different types of the same pathologic condition."

It seems to the author that there has not yet been gathered a sufficient number of reports of cases, since the new methods of studying the blood have been developed, to furnish a basis for exact classification. It is, therefore, wiser to report all such observations and to leave the interpretation of them until a later day. Many would call this an instance of the disease described by Von Jaksch, under the name of "Anemia Infantum Pseudoteukemia."

Thomas, John Jenkes: Acute Degeneration of the Nervous System in Diphtheria. (*Boston Medical and Surgical Journal.* 1898. Vol. cxxxviii. No. 6.)

After extended observations on this subject and a review of various authorities, the author concludes that the changes in the nervous system produced by diphtheria are: (1) a marked parenchymatous degeneration of the peripheral nerves, sometimes accompanied by interstitial process, and hyperemia and hemorrhages; (2) acute diffuse parenchymatous degenerations of the nerve fibres of the cord and brain; (3) no changes, or but slight ones in the nerve cells; (4) acute parenchymatous and interstitial changes in the muscles, especially the heart muscle; (5) occasional hyperemia, or infiltration, or hemorrhage in the brain or cord, in rare cases severe enough to produce permanent troubles, such as the cases of multiple sclerosis and of hemiplegia which have been observed. Finally, the probability that the cases of sudden death from heart failure in diphtheria during the disease, or convalescence, are due to the effects of the toxic substances produced in the disease upon the nerve structures of the heart.

HYGIENE AND THERAPEUTICS.

Monti: Results of the Treatment of Diphtheria with Antitoxin. (*Archives für Kinderheilkunde.* B. xxiv., H. i., ii.)

Two hundred and forty-nine cases of diphtheria were treated with antitoxin with a death rate of 17 per cent. In the author's experience of twenty years previous to the use of antitoxin, the death rate varied between 29 and 40 per cent.

The cases were classified as follows:

First, *the fibrinous form*, in which the diphtheria is located chiefly in the mucous membrane, without grave injury to the parts beneath, with slight manifestations of general infection.

Second, *a mixed phlegmonous form*, in which the fibrinous exudation is present, with an involvement of the superstructure by virulent bacilli, resulting in destructive changes in the parts attacked.

Third, *the septic gangrenous form*, in which the mucous membrane is deeply involved with resulting necrosis. The diphtheritic bacilli and various pathogenic organisms with the products of necrosis producing a general sepsis.

Among the 249 cases treated, 140 belonged to the fibrinous form, 88 to the phlegmonous, and 21 to the septic.

The 140 fibrinous cases are again sub-divided into 49, which were mild, 36 moderately severe, and 55 severe. Of this series 8 died—a death rate of 5.7 per cent. Three were nurslings, dying from gastro-enteritis. One had pneumonia. In 55 there was a laryngeal involvement, with a considerable degree of laryngeal steriosis. In 13, operative measures were necessary; 8 were intubated, with 1 death; 3 other cases were intubated, and later tracheotomy was performed, 1 dying. In the 2 remaining cases the diphtheritic process had involved the throat, larynx, trachæ and bronchi. Tracheotomy was without result. In 10 there was albuminuria; in 13, paralysis of varying degrees and location.

The results of the treatment of the cases of mixed infection, while not so satisfactory as the foregoing, were far better than can be obtained by other methods of treatment.

Of these, 12 were mild, 45 moderate, 31 severe, 17 were fatal—19.2 per cent. This author's mortality in the cases of mixed infection previous to the use of antitoxin was 25 to 40 per cent. Ten cases were intubated, with 7 recoveries, a mortality of 33 per cent., against a mortality of 12 per cent. of the fibrinous cases. Complications and sequelæ were far more frequent in this form. Among the 88 cases, 13 developed paralysis, 12 albuminuria, 22 developing both paralysis and albuminuria. There were 3 cases of purulent adenitis and 2 of septic pneumonia. When the cases were injected early with a sufficient amount of serum, the results were much better than when the injections were delayed and a small quantity of serum employed. Twenty-one septic cases are observed; of these 16, 76 per cent., were fatal. These cases were septic when they came under observation, and sepsis was more of a factor in the death than the diphtheria. No permanent unpleasant results followed the use of antitoxin, even when used in quantities ranging from 20 to 75 c.c.m.

Eshner Augustus A.: The Treatment of Lithæmia. (*The Philadelphia Medical Journal.* 1898. Vol. i., No. 17.)

The author reports a case which came under his observation in 1894, the patient being a youth of seventeen years. Since the age of five he had suffered from recurrent attacks of pain in one or both loins. When five years old he had an attack of hematuria, unattended with pain, and for four or five years subsequently he had similar attacks at intervals of from a week to a month. From this period on the attacks were attended with pain, but free from hemorrhage. It was stated that the pain would appear in either hypochondrium (never in both at the same) and extend to the loin. These attacks were repeated about once a month at first, but they subsequently increased in frequency, until they recurred once a week or oftener, usually occurring at night, and lasting from six to eight hours. Hematuria had occurred once again about a year before the patient came under observation. There had never been jaundice, nor an appreciable swelling, although the loins and hypochondria appeared slightly tender on manipulation. The urine, examined a day after a paroxysm, was found to be perfectly clear, of amber color and acid reaction; it had a specific gravity of 1020.5 and failed to react to tests for albumin and sugar. It contained a moderate number of colorless blood-corpuscles and a small number of red cells.

After a brief period of observation, a diagnosis of renal calculus was made and confirmed by Dr. T. S. K. Morton, who now saw the case in consultation, and suggested the use of diethylene diamin (piperazine) in doses of five grains thrice daily, largely diluted with water. After six days of this treatment, in conjunction with milk diet and rest in bed, the patient felt certain sensations pointing to the descent of a foreign body down the left ureter, and, in the course of a few hours more, signs of a stone in the bladder were present, although this condition had been excluded previously by vesical exploration. A sound now introduced into the bladder came in contact with a body that conveyed the sensation of a gritty blood-clot, measuring about one-fourth inch in its smallest and three-eighth inch in its longest diameter. Dr. Morton concluded from this examination that we had to deal with a descended renal calculus, having its outer layers softened—perhaps as an effect of the action of the piperazine. The lad was anesthetized on the following day and litholopaxy performed by Dr. Morton. The calculus was easily caught and crushed, and the fragments were evacuated by the Bigelow washing apparatus, eighteen grains of debris being removed. This material proved to consist of uric acid. The outer layers were soft and plastic, as if the denser portions had been dissolved away, leaving only the matrix of blood and mucus.

The patient continued to take piperazine, gr. 5 thrice daily throughout one week in every month, and for nearly nine months he felt well and was free from all distress. He was then seized with an attack of pain in the right loin lasting for ten hours, but unattended with hematuria. Three months later, in May, 1895, another and prolonged attack occurred, micturition being for several days attended with pain and the urine tinged with blood. After this, there was almost constant pain in the right hypochondrium and loin for a month, which disappeared upon administration of piperazine. The patient was now comfortable for four months, when, in September, 1895, the pain returned in an aggravated degree. Sweating at night occurred, with fever, the temperature on one occasion reaching as high as 105° or 106° F. At this time also a clot of blood was observed in the urine. As piperazine was causing gastric derangement, with nausea and vomiting, and occasioned distressingly increased frequency of micturition, so great at night as to disturb sleep, it was deemed justifiable to prepare the patient for operation upon the right kidney, in the hope of removing any concretions that might be present in the renal pelvis or the ureter. The patient was urged to continue meanwhile taking the piperazine twice daily. On October 5th, he became conscious of the presence of a foreign body in the bladder, without preceding pain or premonition and on the following day he passed two small calculi, which were unfortunately lost in the urinal. The urine was obstructed twice in its flow and the click of each stone was heard as it struck the basin.

The patient again took piperazine for a short time and remained free from serious discomfort (save cerebral concussion in consequence of falling upon a bicycle) for more than two years, when the pain in the right loin returned. The administration of piperazine was resumed, and after four weeks the patient found the flow of urine suddenly obstructed, with subsequent dribbling and the passage of a few drops of blood. Early in the morning of the following day he became conscious of a sense of pain in the perineum, which gradually advanced forward, and on attempting to pass urine at bed-time, a clot of blood, and finally a calculus, as large as and not unlike the shape of the kernel of a good sized almond, were expelled from the urethra, without effort or noteworthy pain or hemorrhage.

The calculus, which measures 18 mm. in length, 10 mm. in width, and 8 mm. in thickness, and weighs 18¾ grains, is somewhat ovoid in shape, with accuminated extremities and a partly smooth and partly mulberry-like surface, through which passes an oblique groove upon one side. It has a dull lustre, and was of a somewhat ochre-brown color in general, although whitish at one extremity, as if it might have been exposed, in this situation, to the influence of some solvent or disintegrating agency. It is a uric acid formation.

This case is of more than ordinary interest, partly by reason of its long duration, but more especially on account of the happy therapeutic result. That the calculus was expelled with so much ease is probably explained by the fact that the urinary passages had already been dilated by the expulsion of previous but smaller calculi and the urethra in addition by the employment of the lithotrite nearly four years ago. That there will be no recurrence the author felt no assurance and accordingly advised the patient to continue taking piperazine twice a day for six months, then once a day for a year, and after that every second day for another year.

While the author was not thoroughly convinced at first that the good effects in the case were attributable to the use of piperazine, he has no longer any doubt upon this point. The demonstration has been nearly as positive and as convincing as a chemic reaction. Dr. Morton, upon whose suggestion piperazine was used, says that he has lost opportunities for operation in a number of instances by a like use of the drug, and Dr. D. D. Stewart, who was among the first to use it in the United States, and has had with it considerable experience, speaks with much enthusiasm of its therapeutic utility in the presence of uric-acid calculi. In any event it would seem that, except in urgent cases, operation for uric-acid calculi in the genito-urinary tract should not be undertaken until a fair trial with piperazine had failed.

SURGERY.

Breitung, Max: Foreign Body in the Nose. (*Deutsche Med. Woch.* 1898. *Jour. of Laryngology.* Vol. xiii, No. 2. 1898.)

The author reports the case of a boy, five years old, who had suffered for three months from loss of appetite, disturbed sleep, and a bloody purulent discharge from the nose. The skin over the nose and neighboring part of the cheek was swollen, slightly reddened, and sensitive. The upper lip was ulcerated by the bloody, bad smelling discharge. Nostril was completely blocked. Examination revealed a mass covered with pus, which was removed with forceps. It proved to be a piece of flesh which the author thinks must have been forced into the nose by coughing. He points out the danger of forcing pus into the ears in these cases by either inflation or syringing through the other nostril.

Morton, Charles A: Intussusception in an Infant Aged Three Months; Reduction by Operation; Recovery. (*Bristol Medico-Chirurgical Journal.* 1898. Vol. xv., No. 58.)

J. D. came under observation on July 4, 1897, with the history that after the mother had retired to bed on the previous night the baby began to vomit and continued to do so at intervals all night, and at intervals a little blood was passed from the bowel. There was a firm elongated swelling lying midway between the umbilicus and the middle of Poupart's ligament. It did not vary in hardness from time to time. *Per anum,* it could be felt through the rectal wall.

At 2.30 p.m. chloroform was administered, and the author allowed several ounces of water to pass into the bowel from a height of three feet, firm pressure being maintained around the enema nozzle at the anus, so that no fluid escaped until the abdomen was well distended. The swelling at once ascended on the left side of the abdomen to the epigastric region, and then disappeared altogether. When the fluid was allowed slowly to trickle out of the anus, the swelling could again be felt in the splenic region. He did not venture to inject more fluid in so young an infant for fear of rupturing the bowel, as the abdomen had been thoroughly distended with it. He thoroughly washed the abdomen and scrubbed it with 1 in 500 biniodide of mercury solution, and the baby was placed on a hot-water pillow and its limbs and chest wrapped in cotton wool. An incision was made in the upper part of the left semilunar line, *i.e.* near the swelling, and the latter was found to be the apex of an intussusception which filled the ascending and transverse colon. He easily and rapidly reduced it out of the transverse colon, but found great difficulty in kneading it out of the ascending colon, and more especially out of the cæcum, as his incision lay so much on the left side of the abdomen. However, at last he felt satisfied all swelling had disappeared out of the cæcal region, and he sutured the wound in three layers. After suturing the wound, another hard round lump appeared in the cæcal region, but with a little gentle pressure it disappeared. A pad of wool was firmly bandaged over the cæcal region. There was no recurrence of the intussusception, and the infant was quite well by August 1st.

De Costa, John C.: A Case of Pyemia in a Young Infant. (*American Journal of Obstetrics.* 1897. Vol. xxxv., No. 234).

That all cases of septic infection in the new-born, whatever may be the clinical manifestation, are due to the entrance into the body of pyogenic micro-organism, is no longer a question of doubt. In these cases the leading causal agent may be found in the streptococcus pyogenes, whether or not associated with the cocci of suppuration, or with such organisms as the diplococcus of pneumonia or the typhoid bacillus, both of which germs have been demonstrated as the cause of septicemic and pyemic conditions.

The portal of entrance of these bacteria is often very obscure. They often gain entrance to the unbilical vein and may also enter through abrasions of the skin even when very trifling. In rare instances they may result from an otitis or may enter through the intestinal or respiratory tracts. Having exhausted all possible sources of infection without enlightenment, we are compelled to often class a case as one in which the infective agent was introduced "without any observable portal of entrance" (Ziegler), or, if we desire to cloak our ignorance by the use of a misnomer, to call it a case of "idiopathic pyemia."

Once having gained an entrance into the circulation, thrombi, resulting from the coagulation necrosis excited by the septic micro-organisms, are formed in the vessels in the sight of the lesion, and are washed away as emboli, laden with septic bacteria, to various parts of the body.

With the onset of the systemic infection the child begins to have fever and sweating, and commences to rapidly lose flesh. Rigors, so common at the onset of pyemia in adults, are not often noticed in young infants. The temperature is not excessively high, and exhibits fluctuations which may closely simulate intermittent fever. As the fever develops the child becomes fretful and uneasy, refuses to nurse, and may pass frequent greenish, foul-smelling stools. Cutaneous disturbances, such as erythema, petechiæ, and herpes, are commonly observed. Abscesses, which may involve extensive areas, are formed. The location of the abscesses is dependent, of course, upon the point of lodgment of infected emboli; they are commonly seen in the joints, in the subcutaneous tissue and muscles of the limbs and chest, and under the scalp. When the lungs are involved physical signs of bronchitis, lobular pneumonia, abscess, and empyema may be made out, although generally the pulmonary manifestations are slight and poorly marked in proportion to the nature and extent of the lesion. When the renal structure is implicated the urine contains free blood, albumin, renal epithelium, and casts of the hyaline, blood, and epithelial varieties. There may be present signs of peritonitis, either general, or localized near the umbilicus. Among the rarer complications are involvement of the endocardium, pericardium, and pleura, of the pia mater, and of the conjunctivæ and retinæ.

The child seemed perfectly well from birth until January 1st, 1897, when it was two months and one day old. On the morning of the latter date, without previous symptoms, the right leg, foot, and thigh were found to be swollen to nearly twice their natural size, œdematous, painful, but not discolored looking like a case of cellulitis. The labia were also swollen, œdematous, and brawny, and measured one-half to five-eighths of an inch in thickness. The next day (January 2d) the swellings noted the day before were noticeably less marked, but now it was seen that the left elbow was actually inflamed, swollen, and tense, and the left forearm and hand also swollen. By the third day of the illness the parts before involved (the right leg and the left arm) had improved, the swelling being of much smaller extent; but now on the posterior part of the left parietal bone there appeared a swelling, hemispherical in shape, about two inches across its base, and as hard as bone to the touch. This tumor entirely disappeared by the following day, the right lower limb had regained nearly its normal contour and appearance, but enlargement of the left elbow was still noticeable. Abdominal distension, with a good deal of tympany, was now noticed; the facial expression of the child became pinched and anxious; Cheyne-Stokes respiration set in at 11 o'clock that night, and death occurred early the next morning.

An abstract of the *post-mortem* notes of Dr. A. O. J. Kelley, who kindly conducted the necropsy, showed that the swelling of the external genitalia and right leg was due to a serous infiltration of the tissues. The left elbow contained pus, and the bones forming the joint were loosely attached and gave rise to a sensation of roughness when rubbed together. Pus was found in the swelling over the left parietal region. The abdominal cavity contained a quantity of sero-purulent fluid and lymph flakes, and the intestines were united to each other and to the abdominal viscera and parietal peritoneum by bands of recent lymph. The spleen was greatly enlarged and quite soft. The liver showed areas of fatty degeneration.

Many phases of this case favor the diagnosis of acute osteomyelitis, the rapidity of the suppuration, the marked constitutional symptoms, and the joint involvement all pointing toward this disease. The condition of the joint and bone *post-mortem*, however, does not warrant this diagnosis being made; and the initial sign of the disease appearing as a cellulitis of the leg, with subsequent formation of metastatic foci of suppuration, and finally the involvement of a joint in the process, lead me to consider the case one of acute general pyemia, having the clinical manifestations of multiple abscesses of the cellular tissue, peritonitis, and joint suppuration. The origin of the infection in this case is exceedingly obscure. Infection through the umbilicus seems, in view of the healthy condition of the navel and its vessels, to be entirely improbable. The previous inflammation of the upper air passages, from which the baby suffered four weeks before death, had it occurred more recently, might have served to explain the source of the infection; as it was, it is reasonable to believe that, had the septic process originated here, symptoms would have supervened earlier. The milk as the infective agent has been apparently demonstrated by some authorities. It is extremely unlikely that this was the vehicle in this instance. There was no symptoms which would lead one to infer that the septic poisons were absorbed from the gastro-intestinal tract or from the external genitalia; there had been no inflammatory disease of the eyes, and the child's skin had never received a bruise or scratch. Inasmuch as no bacteriological examination was made in this case, both the precise nature or the infective agent and the initial site of the lesion must remain unknown. The treatment, which consisted of the usual supportive and stimulative measures, was without avail, as is the usual result in these grave cases of pyemia, and the case ran its course in spite of these means.

Schramm: Caries of the Spinal Column. (*Jahrbuch für Kinderheilkunde.* B. xlv., H. ii., iii.)

The author's remarks are based upon the observation of one hundred and ten cases of spinal caries.

The disease was localized in the cervical vertebra in ten cases. The dorsal was involved in sixty-six; the lumbar in twenty-one; the sacral in three. In ten, the site of the disease was not given. The great majority were under four years of age. Referring to the ætiology, the tubercle bacillus is looked upon as by far the most frequent cause. Indirectly prolonged illness, the infectious diseases and heredity play an important part. In nearly all of the patients, deformity was present when first seen.

Abscess developed in 40 per cent. of those who presented cervical caries, in 34 per cent. of those who presented dorsal caries, in 40 per cent. of the cases of lumbar caries, and in all three of the cases of sacral disease. In two of the patients with cervical disease, the abscesses were retro-pharyngeal.

In one, the abscess pointed in the supra clavicular foasa. Among the dorsal cases with abscess, seventeen developed along the anterior of the vertebra, a mediastral abscess ruptured spontaneously into both pleural cavities. In four the abscess pointed either above or below Ponpart's ligament. In fifteen the abscess pointed in the inter-muscular septa of the thigh. The pus in two of the abscesses in the lumbar cases escaped through the foramina —ischiodicum displacing the muscles of the part. In twelve of the lumbar cases the abscess pointed either above or below Ponpart's ligament. The prognosis is, as a rule, not good. It is particularly bad in children with tubercular tendencies. Thirty-four cases made complete recoveries. Twenty-seven were markedly improved. Thirty-five showed no improvement, and fourteen died. The management comprised the well-known measures of constitutional treatment with mechanical support of the parts.

American Pediatric Society.

TENTH ANNUAL MEETING.

Cincinnati, June 1, 2, and 3, 1898.

OFFICERS—1899.

President, - - - - - Dr. W. P. Northrup.
First Vice-President, - - - Dr. Geo. N. Acker.
Second Vice-President, - - - Dr. Irving M. Snow.
Secretary, - - - - - Dr. Samuel S. Adams.
Treasurer, - - - - - Dr. E. M. Buckingham.
Recorder and Editor, - - - Dr. Floyd M. Crandall.

COUNCIL.

T. M. Rotch, *Chairman.*

J. P. Crozer Griffith,
B. K. Rachford,
A. D. Blackader,
Wm. Osler,
C. P. Putnam,
F. Forchheimer.

Delegate to the Congress of American Physicians and Surgeons,
Dr. A. Jacobi.

Alternate, - - - - Dr. A. Caillé.

The eleventh annual meeting will be held at the Deer Park Hotel, Maryland, in June, 1899. A full program is greatly to be desired. It is hoped, therefore, that the members will decide upon the subjects for their papers early that an early preliminary program may be issued.

ARCHIVES OF PEDIATRICS.

VOL. XV.] NOVEMBER, 1898. [No. 11.

Original Communications.

THE SCOPE AND LIMITATIONS OF HOSPITALS FOR INFANTS.

THE PRESIDENTIAL ADDRESS DELIVERED BEFORE THE AMERICAN PEDIATRIC SOCIETY, 1898.

BY L. EMMETT HOLT, M.D.,
New York.

GENTLEMEN OF THE AMERICAN PEDIATRIC SOCIETY:—Our meeting this year completes the first decade of the Society. From the small beginning made by a little group in Washington in September, 1888, we have grown to an organization with fifty-four active members, and have done, as a Society, work which has made our name known on both sides of the Atlantic and reflected honor upon American medicine.

In the evolution of this comparatively new specialty, the American Pediatric Society has done much to mould medical opinion. To this body of men, made up largely of the teachers of pediatrics in America, the profession here still looks to work out many of the difficult problems presented by disease in early life. Something we have done, but how little in comparison with the great work yet to be accomplished.

Since our last meeting two of our most distinguished members, both of whom have filled the office of President of the Society, have died. Dr. J. Lewis Smith was one of the pioneers in this department, and his book has probably been more widely read than any book on pediatrics in the English language. Dr. Smith passed away in the fulness of his years, in the midst of the arduous work with which his life had been filled. And how can we express our loss in the death of Dr. Joseph O'Dwyer? Where shall we find another to fill his place? In his modest manner, his rare judgment, his mental balance, and his straightforward method of attacking a single problem and patiently working out its solution to the minutest detail, he was indeed an example to all of us. We miss his genial face among us to-day, and cannot but feel that our Society has met with an irreparable loss.

And now may I ask your attention for a few minutes to a subject which has for me the deepest interest and which must be of vital importance to every pediatrist, viz:

THE SCOPE AND LIMITATIONS OF HOSPITALS FOR INFANTS.

As the past thirteen years of my life have been intimately connected with such institutions I have thought that nothing which I could bring before you would be of more interest than some of the questions connected with their medical management. It has always been true in the history of medicine that special hospitals have followed the development of new departments, these hospitals being at once a cause and a result of such scientific interest. Europe has had its children's hospitals for nearly half a century, and now almost every continental city may boast of a well equipped one. In America, however, hospitals for children are still few, and in many of them the greater part of the service has been given over to the department of orthopedic surgery or to wards for contagious disease; while little room has been left for general medical cases, and usually none at all for children under two years old. Provision for the hospital treatment of sick infants has been the last to come, but it is coming fast, both in the organization of separate hospitals and in the addition to many of our general hospitals of a ward for infants.

The claim of pediatrics to be recognized as a special department of medicine must rest upon the fact that it is devoted to the problems connected with disease in the first years of life. I venture the prediction that the pediatrist of the future will not be he whose interest lies in whooping-cough, scarlet fever, diphtheria, measles, and other diseases which simply occur more frequently in early life than later, but he who devotes himself to diseases and conditions peculiar to the first three years of life. The hospital of the pediatrist, therefore, is not the hospital for contagious diseases, nor yet one where only children over four years are received, but the hospital for infants and very young children.

Hospitals are needed in this department, in the first place, as places of research. The question of the saving of infant life is ast becoming a vital one in social economics. In New York

City during the past eight years, the mortality of infants under one year has been 86,738, being about one-fourth per cent. of the total death-rate, and very nearly the same proportion as is maintained in the cities of Europe. But it is interesting to note that in New York, with increasing knowledge and better sanitation, there has been during the last few years a very decided reduction in this mortality. The year 1897 showed a death-rate under one year, nearly one thousand less than that of any recent year. These are actual mortality figures, it should be remembered, not percentages, and this reduction has been brought about in spite of a steady increase both in the population and in the number of births reported. These facts are certainly most encouraging and should stimulate all of us to do our utmost to improve city sanitation and to spread knowledge upon all subjects relating to infant feeding and care.

But still more encouraging are the results now obtained in private practice among the better classes. Of 151 children who, during the past eight years, have been under my care through practically their entire infancy, not one died before reaching the end of the second year. This is still more significant when we consider how they were fed: only thirty of the number were breast-fed either by the mother or wet-nurses through the greater part of the first year; thirty-three were partly nursed and partly fed, nursing being usually continued for two or three months alone, after which the bottle was added; ninety were entirely bottle-fed. This certainly makes a good showing for artificial feeding and indicates very clearly that among the class of people where artificial feeding can be properly done, it is extremely satisfactory.

During the past eight years while I have been practicing almost exclusively among children, I have had among my own patients but six deaths in children under two years; one from marasmus and a cerebral malformation; one from acute inanition, under observation but ten days; one each from general tuberculosis, intussusception, enterocolitis and pneumonia. I do not think these are exceptional results; for on inquiry I have learned from six professional friends in New York, all of whom practice among children, that their experience in the same class of patients was almost identical with my own. From the facts thus collected I judge that in the well-to-do classes, with the best care, the mortality from all causes during infancy does not exceed two or three per cent., as against a general mortality for this period among all classes of about 20 per cent. These are most hopeful signs and show the possibility of a very great reduction in infant mortality everywhere with a better understanding of all the conditions, but especially of infant feeding.

Referring again to the death-rate in the city of New York, we find that 34 per cent. of the entire number of deaths occur in children under two years, and only 12 per cent. in children from two to fifteen years. Or, in other words, as it is well known that morbidity and mortality figures correspond very nearly, three times as much serious sickness occurs in infants under two years as among all the other patients coming under the care of the specialist. Conditions hereafter to be considered make it undesirable, and in fact forever impossible, that any large percentage of these shall be treated in hospitals, although there are those who look forward to the time when most adult patients shall be treated in institutions, both obstetric, medical and surgical cases. But it is none the less true that only in hospitals can any great headway be made in the solution of many of the problems connected with infantile disease. Let it be clearly understood then from the outset, that hospitals for infants serve perhaps their highest function when they can determine from careful study and observation of the few what is the best treatment for the many.

As places for research, hospitals must be well equipped with pathological, bacteriological and, if possible, chemical laboratories, in order to work out in the fullest and best way the problems constantly arising in the treatment of acute illness. The state spends without grudging large sums of money every year in the experiment stations of the agricultural department to determine the best conditions under which hogs, cattle, fruits, etc., shall be raised; why shall it not devote at least as much of its energy toward the solution of the problem how infants may best be reared, and how the great sacrifice of infant life which now exists may be diminished.

Hospitals are needed, in the second place, for the teaching of physicians and students. One of the greatest deficiencies in the curriculum of the medical schools of the day is the insignificant attention paid to subjects connected with infancy. In order to give students an opportunity for study, hospitals are absolutely necessary. Every hospital should be a teaching hospital. This work in no way interferes with its function of caring for the sick, and has a far wider value in philanthropy than the caring for the children in the wards. The selfishness of those hospital physicians in America who are content to enjoy for themselves the peculiar privileges and opportunities which their positions carry with them, with no thought of their obligation to advance the science of medicine, is unworthy of our profession.

Thirdly, hospitals are needed for the training of nurses. It is just as impossible for nurses as for physicians to learn how to take care of sick infants in the wards of a general hospital, and trained nurses are quite as important for the well-being of the public at large as are trained physicians.

Fourthly, hospitals are needed for the care of such cases as can be better treated in institutions than at home. Of this more will be said later.

The question naturally arises whether a department for infants in a general hospital may not be more advantageous than an institution specially established for this work. My own belief is in favor of special hospitals for the following reasons: It is hard to rouse in the average house physician proper interest in the nutrition and diseases of infancy while he sees around him on every side the brilliant counter-attractions of surgical work and an acute medical service among adults. It is only after the young physician has begun his private practice that he appreciates the value of a knowledge of diseases of infants. Again, it is usually the case that the attending physicians pass over the ward for infants with very scant attention. This may be remedied, of course, and always should be by the appointment of a special attending physician to the wards for infants. But perhaps the chief difficulty is with hospital boards; it being difficult or impossible to make them appreciate the fact that the requirements in the hospital treatment of infants are very different from those for adults.

Hospital work for infants has its discouraging features; the first years of every such institution are sure to reveal many of these. One of the most prominent is the very high mortality—something which was not previously expected and which, as compared with the mortality of ordinary adult hospitals, seems simply awful. This has often so discouraged boards of managers as almost to induce them to give up the enterprise altogether. It is difficult to determine what a reasonable mortality in hospitals for infants should be on account of the many different conditions which affect different institutions. It must be remembered that the mortality of infants under one year is high in all cities, even outside of hospitals; and that in institutions where chiefly cases of serious illness are brought, it must of necessity be very high. Of 1,217 cases under one year old admitted to the Babies' Hospital in seven years, there were 548 deaths, a mortality of forty-five per cent; and if we should add those removed by friends when a fatal result was inevitable, in order that they might have the consolation of the child's dying at home, the mortality would run up fully fifty per cent. The reasons for this high mortality are to be found in a study of the class who make up the bulk of patients who are sent to a hospital for infants. These are:

1. Marasmus cases, the majority being under six months old; they are children whose mothers are dead, or sick, in hospitals, in asylums, or intemperate. Often they are the children of wet-nurses who have been boarded out. Whatever their origin they have been neglected and badly fed, and have gone steadily down until as a last resort they are sent to a hospital.

2. Cases of acute starvation; usually infants under three months old; often on account of extreme poverty or destitution they have had no shelter and no food but tea or beer for days. Many of these at last find refuge in a hospital and live a few days or perhaps but a few hours.

3. Cases of neglect where systematic and regular drugging has been continued, usually by opium in some form.

4. Cases of acute pulmonary or intestinal disease which have been some time sick and have grown alarmingly worse at home. These are sometimes brought by friends as a last resort and sometimes sent in by physicians when they see that a fatal result is probable.

5. Cases of disease which are almost certainly fatal, such as tuberculosis, all forms of acute meningitis, hydrocephalus, serious malformations like those of the intestines, intussusception, etc.

Regarding cases which are hopeless on admission, like most of those just enumerated, one must admit that they have the same right to hospital care and shelter as have cases of cancer or advanced tuberculosis in adults. They are going to terminate fatally whether they are admitted to a hospital or not, but no institution which claims to be charitable or philanthropic can refuse to take its share of these hopeless cases. However, the fact that their proportion is so large, is what raises the mortality figures of an infants' hospital so high. But to judge of the usefulness of an institution by its death-rate where such material is received, is manifestly unfair; nor can it be in any way compared with the mortality in hospitals for adults.

Another discouraging factor to many hospital managers is the expense required. This consists largely in the care and nursing, since the cost of food and supplies play but a minor part. Our lowest expense in the Babies' Hospital has been about one dollar and twenty cents a day *per capita*, and as the work has been better done the expense has risen until it is now about a dollar and a half per day. It is hard to make hospital managers appreciate the fact that the value of work consists not in its amount but in its quality.

There are some peculiar conditions in infants' hospitals which must be considered; those which affect the nutrition of the patients are of the highest importance in modifying the results obtained and are in fact paramount to every other consideration. In private practice the outcome of every acute illness among infants is determined chiefly by two factors. One of these is the patient's previous nutrition. While we do see infants, previously robust, who succumb to acute attacks of pneumonia or intestinal disease, by far the greater number of those who die, perish because they were previously feeble or delicate. The second factor is how well the patient's nutrition can be maintained during the acute attack. This relates not merely to food and feeding, but to all conditions affecting the nutrition—air, bathing, clothing, and general care. It often happens that the disturbance of the patient's general nutrition is more profound and more serious than the local effects of the disease. Thus, a child may have an acute attack of pneumonia which runs its usual course; the lungs clear up; the cough disappears; but the infant does not recover his previous health. Before this disturbance he was sufficiently vigorous not only to maintain existence but to increase in weight; now, however, the balance is against him and he cannot seem to make progress no matter what is done. Little by little he continues to lose in weight until he finally dies from marasmus. Not only do these results follow serious acute diseases but attacks of bronchitis, or indigestion, which are not very severe and sometimes such a mere thing as tonsillitis.

Another striking thing seen in hospitals is the frequency with which one acute attack is followed by a second, and perhaps this by a third, until the child is finally worn out. I have seen as many as six distinct attacks of pneumonia in the course of three or four months—the lungs between the attacks in some instances clearing entirely, as shown by the signs, and in others great improvement taking place but never quite the evidences of local recovery. To be sure, one sometimes sees these things in private practice, but they are seldom met with unless hospital conditions are approached, both as to surroundings and the previous condition of the patients.

In adults, prognosis in most acute infections depends upon the severity of the attack and the integrity of the important viscera—the kidneys, heart, liver, etc.; but in infants, upon the nutrition of patient, even more than upon the severity of the attack, since in a child with feeble resistance even the slightest attack may begin processses which go on to a fatal termination.

We come therefore to the conclusion that the first condition of success in hospitals for infants is a solution of this problem of nutrition, difficult in health often even under the most favorable surroundings, much more difficult in disease, but in disease and under unfavorable surroundings well-nigh insoluble. The things to be considered as affecting nutrition are mainly four: air space, ventilation and airing, nursing and care, feeding.

THE AIR SPACE.—In most hospitals for infants the maximum allowance is only 600 or 700 cubic feet to each bed. At the Randall's Island Hospital, New York, it is in many wards much less than this; in one of their diphtheria wards it was but 400 cubic feet. At the Nursery and Child's Hospital, 650 cubic feet has been set by the Board of Health as the allowance. At the Babies' Hospital we began with this space but found it to be totally inadequate. For the last three years the allowance per bed has been 800 cubic feet, and it is now 1,000 cubic feet. With less than this I am sure the results will always be unsatisfactory with children under one year. For those who are beyond this age a little less may suffice except in cases of very acute illness. Our experience may be stated somewhat as follows: two infants in a ward of a given size do well; three may do fairly; four are sure to do badly, and, if the number is increased beyond this point all will fail rapidly and some will soon die. In the old Emigrant Hospital on Ward's Island, Dr. A. M. Thomas found that infant feeding could be conducted almost as satisfactorily in the ward of an institution as in private practice, but his experiment was conducted with an allowance of 2,500 cubic feet to each child.

The question of ventilation is a difficult one and it must be considered with that of airing infants. No matter how good the ventilation of the ward, infants must be taken from it once or twice a day to an apartment where an entire change of atmosphere is secured. Separate rooms for airing, protected balconies or sun-gardens must form a part of the equipment of every hospital if good results are to be obtained; some provision, however, must be made to get infants out of their habitual atmosphere. The youngest, and those most acutely ill, need it most, and should have a change of at least two or three hours a day, thorough airing and ventilation of the wards they have left being accomplished meanwhile. Nothing is quite so fatal as overcrowding in close, superheated rooms. The time of airing and the change of temperature allowed should be carefully regulated by the physician and made a distinct part of the child's treatment. In the wards, ventilation should be as perfect as possible, and there should be open fires whenever these can be secured. These things are often carefully looked after during the day, but entirely neglected at night.

Cleanliness in its minutest details should be secured at whatever cost. Under the artificial conditions of hospital life purity of the atmosphere is absolutely necessary. Nothing which contaminates the air of the ward should be permitted. Soiled napkins should be immediately removed. No gas should be used at night; but, if not electricity, the wax night-lamp of the nursery. Frequent fumigation of the rooms with formaline or sulphur should be practiced where cases of acute illness are continually treated. The floors should be wiped daily with cloths wrung out of antiseptic solutions. All of these matters, of course, greatly increase the labor of hospital work, and consequently the expense. It costs to keep clean, but the surgeons have demonstrated to us that it pays. The essential hygienic conditions belonging to a well-appointed nursery are indispensable to good hospital work.

The temperature of the different wards should be suited to the nature of the cases treated. Thus 75° F. may be necessary for premature, very feeble and some marantic infants; 68° to 70° F. for ordinary cases of acute illness; 66° to 68° F. for those not acutely ill and for most children over one year old. For convalescent children provision should be made for additional outings on balconies, piazzas, and in hammocks and perambulators about the grounds whenever the weather will permit.

NURSING AND CARE are no less important than the matters already mentioned. Infants require fully four times as much care as any other class of hospital patients. No good results can be expected where a ward with twenty babies is given into the care of three or four nurses, however intelligent and industrious. It has been my experience that even in the case of infants who are not acutely ill, not more than three can be well cared for by a single nurse, and for those who are seriously ill one nurse to every two children is the minimum. This nursing must be constant, and it does not consist simply in the administration of food and medicines, and the application of clean diapers; infants must be taken from their beds, held, given opportunities for change of position, and in most cases for a certain amount of exercise.

FEEDING.—To obtain the best results a hospital for infants should have command of every method of feeding; not only the most approved methods of artificial feeding such as can be furnished by a milk-laboratory in the hospital, but with wet-nurses for certain special cases. Nothing is more discouraging than the great difficulties in the way of artificial feeding in institutions of children under six months old. For those wasted specimens admitted with chronic indigestion and malnutrition practically nothing can be done by any method of artificial feeding which I have ever tried.

The greatest difficulties in the hospital's treatment of infants are met with in patients under one year. After this age the conditions of nutrition are usually not so hard to control, and the proportion of those children who do well is very much larger. The dangers of "hospitalism" are therefore inversely proportionate to the age of the patient. In a very young infant whose organism has not yet acquired stability, resistance is so feeble that it can not long be subjected to hospital conditions without serious injury. In such patients it seems to be impossible to combat at the same time the effects of acute disease and a depreciated nutrition. But with every month of advancing age the problem becomes easier, and when their nutrition may be said to be established, they can withstand the deleterious influences of hospital life, and most diseases can be successfully treated.

According to my experience, the diseases and conditions during the first year which are especially suited to hospital treatment are acute pneumonia, empyema, acute forms of gastro-intestinal disease, otitis and its complications, ophthalmia, acute surgical cases and most cases of eczema in children over six months old. In all acute diseases it is unwise to retain the infant in the hospital after the acute stage of the disease is past unless the hospital is in the country; and even here in a few weeks the baneful effects of hospitalism are frequently apparent. The retention during the whole period of convalescence is fraught with great danger and is very frequently followed by secondary attacks. In a large number of cases above referred to the condition is somewhat like this: The disease can be cured provided the child is sufficiently strong and old enough to stand the strain of life in a hospital. This is a question to be considered in every disease which requires a prolonged stay. One of the most striking limitations which one encounters in the treatment of infants in hospitals is in the management of cases of chronic nutritive disorders. Complete restoration to health and vigor of such children in a hospital, although not impossible, is not to be expected. Perhaps the most that can be done for them is to keep them long enough to decide the question of the method of feeding best suited to the case, and then care for them as out-patients.

During the second and third years the results in the treatment of all diseases are very much more satisfactory. Not only may all the diseases enumerated in speaking of the first year be successfully managed, but also many chronic nutritive disturbances, such as simple malnutrition, chronic indigestion, rickets, scurvy, cretinism, some chronic surgical cases, and under certain circumstances some of the contagious diseases, provided the hospital has facilities for their isolation. With reference to the admission of contagious diseases during infancy, however, great dangers and very bad results are usually seen from grouping many children together, particularly in measles, diphtheria and whooping-cough, where the tendency is so great to the development of broncho-pneumonia amid such surroundings. Many of the bad results attributed to the use of antitoxin in infants are simply the effects of hospitalism and were seen years before antitoxin was known. In a recent epidemic of measles seen in the Nursery and Child's Hospital, over one-third of all the cases were complicated with pneumonia, and in some wards almost every child with measles developed pneumonia. Dr. Crandall tells me that of thirteen cases of measles in one crowded ward in the Randall's Island Hospital, twelve were fatal, all from pneumonia. Results in measles and diphtheria during the first two years are, I believe, much worse in crowded hospitals than when children are treated separately in tenement houses, even under very bad surroundings. One of the reasons why cases like those mentioned above are not suited to hospital treatment is the prolonged stay which convalescence from infectious diseases requires. Under such conditions, complications like late pneumonia, entero-colitis, etc., are almost certain to develop, and to these many patients, who escape acute disease, succumb.

There are several peculiar phases of disease seen in infant hospitals. One of the most striking of these is hospital marasmus. While it occurs most frequently in children already suffering from malnutrition, or in those who have previously suffered from acute disease, it is seen in others who were perfectly well on admission. After gaining perhaps for a week or two, such children, as a result of hospital surroundings, begin to lose appetite and color; they show stationary weight, then a loss of a few ounces; then vomiting begins, and a more rapid loss continues, until a condition of marasmus is reached. Some of these children show no evident signs of indigestion, and may continue to have good, well-digested movements from the bowels. Gradually they become more and more anæmic, frequently there is general œdema, and at last they succumb to marasmus. Toward the end there may be an intercurrent attack of some acute process like bronchitis, acute diarrhœa, possibly broncho-pneumonia; but death often occurs without any of these, the autopsy showing no lesions to explain the fatal result. Hospital marasmus is rarely seen except in infants under eight months old, and occurs most frequently in those under four months old. It demonstrates beyond any question how injurious to infant life is the atmosphere of a hospital. As already stated above, one-third of the deaths in children under one year old who are admitted have been, in my experience in the Babies' Hospital, due to marasmus.

A most distressing thing is the frequency with which children admitted for simple malnutrition or some slight ailment, develop some serious forms of acute disease while in a hospital. I need not dwell upon how often the contagious diseases are contracted amid such surroundings; this is well known and fully appreciated. I wish especially to refer now to other diseases, particularly pneumonia and acute intestinal diseases. The hospital records show that during the last ten years no less than thirty children, admitted for minor ailments, developed primary pneumonia, and many more developed inflammation of the gastro-intestinal tract. While without doubt the opportunities of infection from without are very great in a hospital, it is my belief that most of these attacks are to be regarded as examples of auto-infection, and are due to the fact that the child is placed under conditions which greatly diminish his resistance. Few things are more discouraging than to see a child, admitted in tolerably good condition, develop, after a stay of a week or two in the hospital, an acute pneumonia or entero-colitis which proves fatal.

From what has been said, the inference is drawn that infants should not be sent to hospitals for minor ailments and kept there a long time, also that the effect of combining sick and well children in the same ward has a most injurious effect upon the latter; and, further, that after every form of acute illness, children should be removed as soon as possible from the hospital atmosphere.

The ideal infants' hospital, in my opinion, is not a large one. The general hospital with its two or three hundred beds can not be imitated here. The greater the degree to which infants are massed and crowded together, the more unnatural are the conditions under which they are placed, the worse are the results of treatment and the less valuable does the study of disease under such conditions become as a guide to practice elsewhere. As an illustration of this point, let one study the statistics of the large foundling asylums of Europe. A hospital of fifty or sixty beds is, in my opinion, greatly to be preferred to one of double or treble the size; but it should be provided with every appliance known for the relief of sick infants, and its work should be done under the most approved conditions for achieving the best results. Its hygienic surroundings should be more carefully considered and watched than those of a well-appointed nursery.

Small wards containing from four to six patients are greatly to be preferred to those of fifteen or twenty, if for no other reason than to avoid the danger of contracting contagious disease. So far as work in large cities like New York is concerned, hospital work during the summer should be conducted in the country. With diarrhœal diseases, I believe, the results obtained in close hospital wards in the city are quite as bad as in the tenements.

A reduction in hospital mortality is to be secured not simply by improving our methods of feeding, although this has been the aspect of the subject which has so far attracted most attention, I regret to say, to the neglect of the other phases of the question. This is not all the problem nor, to my mind, even the most important feature of it. Between ordinary methods of feeding and the best methods the difference in results in institutions is not great, indicating very clearly that this is not the factor of chief importance. It is a familiar experience to see an infant, who, in a hospital, has been losing in weight and showing all the signs of perverted nutrition, begin to improve at once and gain steadily when removed from the hospital ward, sometimes upon the identical food which it was receiving, and not infrequently when both the food and the manner of feeding have been greatly inferior. In hospitals not only the feeding, but all other conditions mentioned must receive due consideration as well—the air space, ventilation, airing, temperature, nursing and care. When all these are fulfilled, I believe that the results obtained will fully justify the existence of separate hospitals for infants in bringing about a more accurate and wider knowledge of infantile diseases and their treatment.

Hospitals for infants are necessary, as I have already shown, but they must be conducted with a very definite knowledge of what can be done in them and what should not be attempted. By recognizing fully their limitations, as well as their advantages, they may be made of the greatest possible benefit to the profession and the public. The conditions of success are difficult and the discouragements are many. Those with experience will not say, I am sure, that I have over-stated the facts. The work must be well done to be of any value either to the patients treated or to medical science, and unless circumstances will admit of its being done well it should not be attempted at all.

14 WEST FIFTY-FIFTH STREET.

REMARKS ON THE CLASSIFICATION OF THE ANÆMIAS OF INFANCY, WITH A REPORT OF A SEVERE CASE.*

BY JOHN LOVETT MORSE, A.M., M.D.,

Physician to Out-Patients at the City Hospital and at the Infants' Hospital, Boston. Assistant in Clinical Medicine, Harvard Medical School.

Alice C., ten months old, was brought to the Infants' Hospital July 14, 1897. The parents were Canadians and well. Of eleven older children, seven had died of various troubles; the remainder were well. There was no tubercular or syphilitic history.

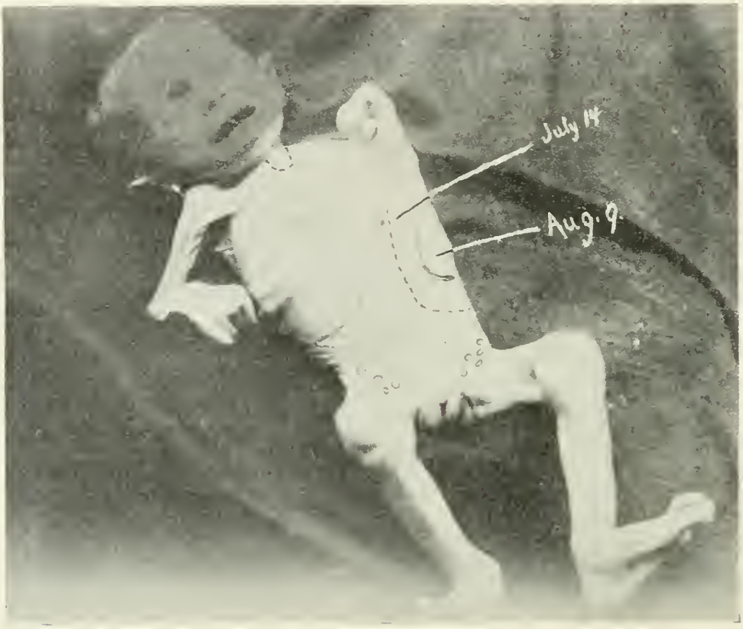
She was healthy at birth. She was never nursed, but was fed on various "infant foods." She never thrived, and gained little or no weight. During the last few weeks she had rapidly lost both weight and strength. She had always vomited a good deal, less recently. Had considerable diarrhœa for first few months; since then moderate constipation, the movements being normal in color. Always subject to cough; more so lately. Said to have had pneumonia at eight months. Bunches were noticed in the neck and groins at five months. They had not increased markedly since. Depression of fontanelle, dryness of skin and nocturnal fever had been present for three months. A tumor in the abdomen was first noted a week before she came to the hospital. It had increased somewhat in size during this time. There had been no internal or subcutaneous hemorrhages.

PHYSICAL EXAMINATION.—Poorly developed and emaciated. Skin dry and generally brownish, but pigmentation nowhere localized. No subcutaneous hemorrhages. Frontal bones at a considerably lower level than parietal. Parietal eminences large. Fontanelle depressed, but small. No teeth. Tonsils normal. Whitish bunch, size of a small pea, in median line at junction of hard and soft palate. Slight rosary. Heart and lungs normal. Thyroid not enlarged. Dulness under upper part of sternum. No dulness at root of lungs. Numerous small glands both anterior and posterior to sterno-mastoid muscles. Glands in axillæ, size of pea. Glands size of peas and walnuts in both groins.

---

* Read before the American Pediatric Society, Cincinnati, June 2, 1898.

Liver flatness above at sixth rib; edge felt three fingers' breadth below costal border. Edge of liver sharp and firm. Spleen felt running from left anterior superior spine across to umbilicus and thence upward under ribs in left nipple line. Notch a little above level of umbilicus. Edge smooth and hard. Slight enlargement of epiphyses.



SEVERE ANÆMIA WITH SPLENIC TUMOR.

Blood.	Hæmoglobin, - - - -	60 per cent.
	Red corpuscles, - -	4,340,000
	White corpuscles, - -	31,500

Owing to poor straining it was impossible to make a differential count of the white corpuscles at this time and the red cells were alone examined. They showed very marked variation in size. Poikilocytosis was extreme. Nucleated forms were very numerous. Of 100 nucleated cells, 89 were macroblasts and 11 normoblasts. Six of the macroblasts showed nuclear figures. Many of the nucleated, and some of the non-nucleated forms, were polychromatophilic.

A differential count of the white corpuscles was made from cover-slips prepared five days later, July 19, 1897. This resulted as follows:

Lymphocytes, - - - - -	29.5 per cent.
Large mononuclear, - - -	9.9 " "
Polynuclear neutrophiles, - -	56.5 " "
Eosinophiles, - - - -	.3 " "
Myelocytes, - - - - -	3.8 " "

Strangely enough, nucleated red corpuscles were very much less numerous that at the preceding examination. While counting 1,000 white corpuscles, 17 nucleated red cells were seen, all macrocytes. Three of these showed nuclear figures. Polychromatophilia was much less marked.

The diet was regulated, and small doses of Fowler's solution ordered.

The child was not seen again until August 9th. The general condition was then somewhat better. The physical examination was unchanged, except that the spleen had diminished considerably in size. (See photograph). The blood was unfortunately not examined. The child was not seen again, but the mother wrote in answer to an inquiry, that it died on September 18th. There was hemorrhage from the bowels for two weeks before death, and the "bunch in the side could not be felt."

Before attempting to classify this case it may be well to consider briefly the peculiarities of the blood in infancy both in health and disease. The blood of infants under two years, normally differs in certain of its characteristics from that of adults. The hæmoglobin, although relatively high for a few weeks after birth, is, during the rest of childhood, relatively low. The number of red corpuscles is about the same or a little larger than in adults, averaging a little over 5,000,000 per cubic millimetre. During the first weeks of life there is more or less variation in the size and shape of the red cells, and nucleated forms are not very unusual. The number of white corpuscles per cubic millimetre is somewhat larger than in adults, averaging from 10,000 to 12,000. The relative proportions of the various forms of leucocytes are also considerably different. The limits, as given by Gundobin, are as follows:

Small mononuclear, - -	50 per cent. to 70 per cent.
Large mononuclear, - - -	6 " " " 14 " "

Polynuclear neutrophiles, - 28 per cent. to 40 per cent
Eosinophiles, - - - - 1 " " " 10 " "

That is, the proportion of mononuclear forms is about three times as great as in adult life, while that of the polynuclear neutrophilesis only half as large. The mononuclear cells, moreover, are not merely lymphocytes, but vary much, not only in the size of the cell as a whole, but also in the size of the nucleus and in the amount of protoplasm. Finally, an increase in the number of eosinophilic cells, even if considerable, seems to be of less significance.

Blood changes develop more easily and more frequently as the result of various morbid conditions and diseases in children than in adults. All the changes seen in the blood of adults as the result of disease, are exaggerated in infancy. The tendency is always to revert to a younger or to the fœtal type of blood. All forms of blood disease in infancy are apt to be associated with splenic enlargement.

As the result of this tendency to exaggeration of changes and to reversion to a younger type, the red corpuscles show much greater variation in size and shape and many more nucleated forms than in similar pathological conditions in adults. Leucocytosis also develops more rapidly and to a greater degree. Its type, moreover, is not constant as in adults in whom the increase of white cells is almost entirely in the polynuclear neutrophiles. In children the leucocytosis is sometimes due to the increase of lymphocytes, sometimes to that of the large mononuclear forms, sometimes to that of the polynuclear neutrophiles and sometimes even to that of the eosinophiles. The general tendency, however, seems to be toward lymphocytosis, *i.e.*, toward the infantile type. This variation in the character of the leucocytosis is difficult to explain, except on the assumption that the proportions of the leucocytes correspond to certain tissue conditions and alterations which are at present unknown. The lymphocytes seem, however, to be especially increased in affections of the gastro-enteric tract. Leucocytosis is more apt to occur in blood conditions associated with splenic enlargement than in those without it. Myelocytes occur in less severe conditions and in greater numbers than in adults. The percentage of hæmoglobin is almost always relatively low.

Owing to the peculiarities just noted, the classification of the anæmias of children is at best a vexed one. They, as those of adults, may be roughly divided into the primary and secondary, the primary being subdivided into chlorosis and pernicious anæmia. Chlorosis, with its typical symptom complex and blood, is not a disease of early childhood. Cases of progressive pernicious anæmia have been reported in young children, but they are all open to criticism, either because they do not correspond to the blood-type accepted for this disease, or because they are secondary. There is no evident reason, however, why this disease should not occur in infancy. In fact, the instability of the blood at this age would seem to predispose to its occurrence. The secondary anæmias may be divided, in accordance with the classification of Monti, into the mild and severe forms—anæmia levis and anæmia gravis. In the former the diminution in the specific gravity, hæmoglobin and number of red corpuscles is slight and the red corpuscles show no histological changes. In the latter the diminution in the specific gravity, hæmoglobin and number of red corpuscles is marked and the histological changes in the red cells are often considerable. In this form marked variation in the size, shape and staining qualities may be present and nucleated forms of all sizes and shapes are not infrequent. Either form may or may not be accompanied by leucocytosis. In all forms, whether or not accompanied by leucocytosis, the spleen may be enlarged. It is evident, moreover, from the above description, that no sharp distinction can be drawn between the various forms, but that all must merge into one another.

It is to the severe form of anæmia without leucocytosis associated with splenic tumor that the term "splenic anæmia" has been applied. There is no justification, however, for setting these cases apart as a special form of disease and giving them a special name, for there is nothing characteristic in the blood condition; the same condition of the blood occurs unassociated with splenic tumor and in connection with leucocytosis; splenic tumor occurs with other blood conditions and with a normal condition of the blood; both blood changes and splenic tumor occur together, as secondary manifestations, in the course of other diseases, notably, rickets. The splenic tumor must, therefore, be regarded either as an accidental association or as a result of the same cause as the anæmia.

Certain cases of severe anæmia associated with marked leucocytosis and with large splenic tumor have been described under the term "anæmia infantum pseudo-leukæmica." There seems to be no unanimity of opinion among those who use this term, however, as to what constitutes the disease. Von Jaksch, who gave it its name, describes it as a form of anæmia of children whose symptoms and clinical course correspond to the picture of leukæmia. There is marked enlargement of the spleen, liver and glands, a very considerable leucocytosis, but no evidences of leukæmia on section. The course is less rapid and the prognosis better than in leukæmia. The increase in size of the liver and spleen is not proportionate as in leukæmia, that of the liver being relatively less than that of the spleen. The edge of the liver is sharp, not rounded, as in leukæmia. His examinations of the blood are unsatisfactory, and he gives no differential count of the white corpuscles. Luzet and Alt and Weiss describe the blood condition as follows: Constant diminution in the number of erythrocytes; constant more or less marked diminution in hæmoglobin; poikilocytosis; very many nucleated red cells, mostly of abnormal form and many showing karyokinetic figures; polychromatophilia of the nucleated red cells and many of the non-nucleated; pretty marked leucocytosis, always polymorphous. In addition there is always splenic tumor and more or less enlargement of the liver. They apparently attribute no diagnostic importance to the presence or absence of myelocytes. This description is the one which is at present the more generally accepted. Those who consider this blood condition characteristic are divided, however, as to the limitations of the disease. Some, who consider it always primary, would rule out those cases in which it develops secondary to rickets, syphilis or other anæmias, while others would include them. Careful comparison of the clinical histories and blood examinations of the cases reported as examples of this disease show still further discrepancies in the conception of the disease.

There is nothing characteristic in the changes described in the red corpuscles. They may be seen in any severe anæmia. In the same way there is nothing characteristic in the leucocytosis; it is merely a question of degree. Fischl has found the same type of blood in cases of rickets both with and without splenic enlargement. Moreover, cases of progressive anæmia with enlarged liver and spleen do not always show this condition of the blood. In addition, ordinary secondary anæmias have been seen to develop this blood-type while under observation. Von Jaksch claims to have seen it change to a leukæmia, and Muller to a pernicious anæmia. These last observations must be considered as doubtful, however. It is evident, therefore, that there is nothing in the etiology, clinical history or blood of the so-called "anæmia infantum pseudo-leukæmica" to justify its acceptation as an independent disease. It is rather to be regarded merely as a severe type of secondary anæmia which may arise as the result of many diseased conditions. Its special peculiarities, marked leucocytosis and large excess of nucleated red corpuscles, are in no way characteristic, but merely due to the age of the patients. While these cases are not sufficiently characteristic to be considered as examples of a separate disease, they are of importance in that they emphasize not only the heterogeneous character of the anæmias of infancy, but also the difficulties in the way of their classification.

In the light of our present knowledge, therefore, a very simple classification is alone justifiable. The following modification of Monti's is, I think, a fairly satisfactory one:

SECONDARY.—Mild anæmia.
Mild anæmia with leucocytosis.
Severe anæmia.
Severe anæmia with leucocytosis.

PRIMARY.—Pernicious.
Leukæmia.

In all of these forms there may be greater or less splenic enlargement. Splenic tumor, therefore, is of little or no aid in the differential diagnosis of the anæmias of infancy. Under the head of severe anæmia with leucocytosis must for the present be included all those anomalous cases which do not correspond to the type of either pernicious anæmia or leukæmia. That is, this class includes the cases which have hitherto been described as "anæmia infantum pseudo-leukæmica." Unfortunately there is practically no data as to the type of blood of either pernicious anæmia or leukæmia in infancy. For the present, therefore, they must be considered to be the same as in adults.

My case illustrates very well the difficulties in the way of classification. The histological changes in the red corpuscles and the great preponderance of large nucleated forms suggest pernicious anæmia. The diminution in the number of red cells is slight, however, and much less than that which usually occurs in this condition. Splenic enlargement to the degree present in this instance is at least unusual. The number of white corpuscles and their relative proportions is not, however, inconsistent. The enlargement of the liver, spleen and glands suggests leukæmia. The increase in the number of leucocytes is only moderate, however, being much less than that which usually occurs in leukæmia. The percentage of myelocytes, moreover, is small, being no larger than that which is often met with in severe secondary anæmia of any sort. The clinical history and blood correspond pretty closely to those of "anæmia infantum pseudoleukæmica," as described by Luzet and Alt and Weiss. This condition, however, as already stated, cannot be considered as a disease *sui generis*, but merely as a severe form of secondary anæmia with leucocytosis. My case, too, must therefore be regarded, I think, simply as an example of this large and irregular class of severe secondary anæmia with leucocytosis. The cause of the anæmia in this instance is undoubtedly to be sought in the general malnutrition resulting from improper food. The splenic tumor must be regarded as merely a coincidence, a result of the same cause. That it is not an essential feature of the case is shown by the fact that it became smaller as the case progressed, probably finally disappearing entirely.

317 MARLBOROUGH STREET.

LITERATURE.

ALT u. WEISS: Centralblatt f. d. med. Wissenschaften, 1892, XXX., 433.

ANDEOUD: Rev. de. méd. de la Suisse rom., 1894, 507.

BAGINSKY: Archiv. f. Kinderheilk., 1891, XIII.

BANTI: Dell' Anæmia Splenica. Florence, 1882.

CABOT: Clinical Examination of the Blood.

EPSTEIN: Prag. med. Wochenschr., 1894, 6.

FELSENTHAL: Archiv. f. Kinderheilk., XV., 78.

FELSENTHAL u. BERNHARD: Archiv. f. Kinderheilk., XVII., 333.

FISCHL: Zeitschrift f. Heilkunde, 1892, XIII., 277.
Wiener klin. Wochenschr., 1894, VII., 241.

GLOCKNER: Zur Casuistik der Anæmia Splenica. München, 1895.

GUNDOBIN: Jahrb. f. Kinderheilk., 1893, N. F., XXXV., 187.

HAYEM: Gaz. des Hôpitaux., 1889, No. 30.
HOCK u. SCHLESINGER: Centralblatt f. klin Med., 1891, XII., 873.
Hæmatologische Studien, Leipzig u. Wien, 1892.
LUZET: Études sur les Anémies de la Première Enfance et sur. l'Anémie Pseudo-leucémique. Thèse, Paris, 1890.
Archives Générales de Médicine, 1891, 597.
La France Médicale, 1891, XXXVIII., 771.
MONTI: Wiener med. Wochenschr., 1894, XLIV., 401.
Wiener med. Presse, 1894, XXX., 1552.
Archiv. f. Kinderheilk., 1884-5, XVIII., 161.
MONTI u. BERGGRÜN: Die chronische Anämie im Kindesaltes.
MORSE: Boston Med. and Surg. Journal, 1897, CXXXVI., 369.
MULLER: Charité-Annalen, 1889, XXIV.
REHN: Gerhardt's Handbuch d. Kinderkrankh., 1878, III.
ROTCH: Pediatrics.
SCHIFF: Zeitschrift f. Heilk., 1890, XI.
SENATOR: Berlin. klin. Wochenschr., 1892.
SOMMA: Allg. Wiener med. Zeitung, 1891.
STENGEL: Twentieth Century Practice of Medicine, VII., 460.
TAYLOR: Guy's Hospital Reports, 1896, LII., 173.
VON JAKSCH: Wiener klin. Wochenschr., 1889, II., 435.
VON LIMBECK: Klinische Pathologie des Blutes, 1896.
WEISS: Jarhb. f. Kinderheilk., 1893, XXXV., 146.
WEST: Med.-Chir. Tr., 1896, LXXIX., 323.

DISCUSSION.

DR. JACOBI.—I am delighted to find that a gentleman who has been studying the blood for years and who is intimately acquainted with it in all its phases, should feel obliged to protest against the multiplication of names and diagnoses. The result of his studies has led to the conclusion that the names we now possess are ample for making our diagnosis, always taking into consideration that the gradual transition and mutability of several forms of anæmias are well established and may occur. We do know, for instance, that cases at one time recognized as pseudoleukæmia, may afterward turn into leucocythæmia, etc. If I understood correctly, there was in this case enlargement of the spleen and liver in the beginning. It is not necessary that those be a part of the disease; they may have existed before. The spleen got a little smaller after a while and it appears that is not the case in leucocythæmia. There were 4,100,000 red blood cells and 30,000 white, that is a proportion of 1 to nearly 140, which comes near the boundary line of leukæmia. Afterwards no other examination of the blood was made. The doctor states that there was a poikilocytosis, so it seems to me the case should be claimed to be one of so-called pernicious anæmia. The lymph bodies were swollen all over. That with the diminution in the blood cells would give us the appearance of pseudo-leukæmia, Hodgkins' disease. I understand that a *post-mortem* was not made. If it were not for the poikilocytosis in the case I would say that it was a case of Hodgkins' disease, but the poikilocytosis characterizes it as a pernicious anæmia. There is no reason why these two conditions should not occur at the same time, under the same or similar or different unknown circumstances.

DR. FREEMAN.—I had a case a year ago in which the appearance of the child was much like this. There was considerable emaciation, enlargement of the liver and spleen, considerable anæmia with leucocytosis. The diagnosis was not made until autopsy, when we found an abscess of the left kidney, which had not caused a large tumor. It had produced a waxy liver and a waxy spleen. We also found tuberculosis present.

DR. MORSE.—It seems to me that in the light of the knowledge which we now possess of the different forms of white corpuscles, as shown by differential staining, it is too late to speak of the relative proportions of white and red corpuscles in making the diagnosis between leucocytosis and leukæmia. The number of red corpuscles depends on one factor and the number of white corpuscles on another. There is no necessary relation between them. They must, therefore, always be considered independently. Moreover, there is no absolute number of white corpuscles which can be regarded as fixing the line between leucocytosis and leukæmia. In leucocytosis the increase is largely in the number of polynuclear neutorphiles, although in infants it may be in the lymphocytes. In splenic-myelogenous leukæmia, on the other hand, while all forms are increased, the bulk of the increase is due to the presence of abnormal white corpuscles, the myelocytes. The presence of a small percentage of myelocytes, even as high as 5 per cent., does not justify the diagnosis of splenic-myelogenous leukæmia, however, as a small percentage of myelocytes is found in many severe blood conditions, especially in children. The percentage of hæmoglobin in this case is much lower relatively than that of the red corpuscles, a condition which is the opposite of that usually excepted for pernicious anæmia. The number of leucocytes is increased, which is not the rule in pernicious anæmia. This might, however, be due to some other cause and would not rule out pernicious anæmia. The histological changes in the red corpuscles alone correspond to the blood type of pernicious anæmia, but, as already pointed out, the tendency of the blood in disease in infancy is to revert the fœtal type, and the presence of poikilocytosis and of nucleated cells in infancy is of much less diagnostic value than in adults. As already stated, the case can only be regarded, therefore, as one of severe secondary anæmia with leucocytosis.

Passage of Substances from Fœtus to Mother.—Lannois and Brian (*Gaz. Hebdom. de Méd. et Chir.*) having had under observation a patient with grave symptoms of albuminuric origin, in whose case the symptoms suddenly disappeared on the death of the fœtus, though the latter was not expelled till seventeen days later, made some experimental inquiries, from which they concluded: (1) That substances (such as salicylate of soda, iodide of potassium, and methylene blue) injected into the fœtus, pass through the placenta, and can be detected in the tissues and urine of the mother. (2) This experimental fact supports the view already advanced by Lannois, that normal excretory products of the fœtus pass through the placenta to be eliminated by the maternal organism. (3) In case of renal insufficiency these waste products of fœtal life can therefore in part contribute to the maternal auto-intoxication, and consequently can play a part in eclampsia and other accidents associated with the albuminuria of pregnancy.—*British Medical Journal.*

Serumtherapy for the Newborn.—Loviot (*Bulletins et Mémoires de la Soc. Obstétricale et Gynécologique de Paris,* 1898) carried out this treatment with success in the case of an infant under three months utterly exhausted by gastroenteritis. It also had double inguinal hernia. Asses' milk, washing out of the stomach, and other remedies proved of no avail. Loviot injected artificial serum subcutaneously (10 g. or 154 gr. of table salt to the litre or 1.7 pints of sterilized water). From 20 to 50 g. of the serum were injected once or twice daily, according to the patient's condition for about a week. The injections were made into the subcutaneous tissues of the front of the thigh, the abdomen, or the back of the forearm. The *couveuse* was not needed, as there was no fall in temperature. The infant rapidly recovered from its perilous condition.—*British Medical Journal.*

STUDY OF A CASE OF RICKETS, WITH SKIAGRAMS.

BY ISAAC A. ABT, M.D.,

Professor of Diseases of Children, Northwestern University Woman's
Medical School; Attending Physician, Diseases of Children,
Michael Reese and Provident Hospitals, Chicago.

I. R., twelve years of age, was born in Russia Poland, of Jewish parentage. The family came to this country four years ago. The patient is a bright little fellow. He gets along well at school, and has acted as interpreter at my clinic for the past two months, in which capacity he has shown himself unusually efficient.

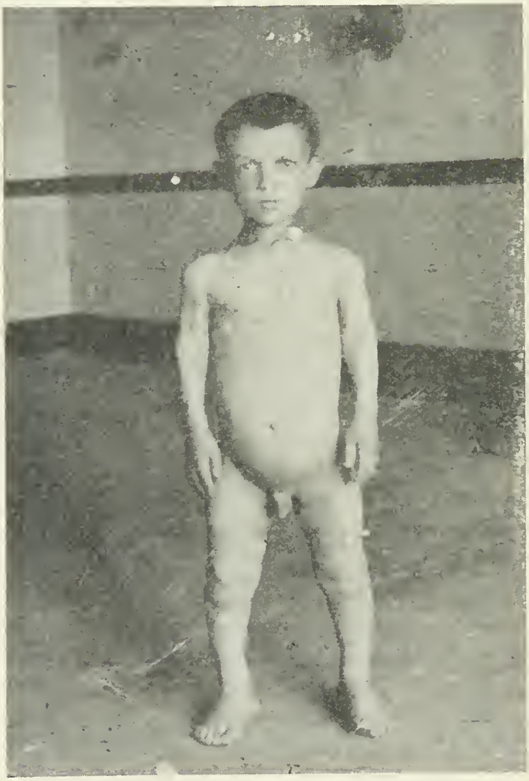


Fig. 1. RICKETS IN A BOY OF TWELVE YEARS.

The father is living and is well. He was fifty-three years of age when this child was born; the mother is well, and was thirty-six years old when the patient was born. There are three sisters and one brother, who are living and well. One child died of diphtheria. One of the patient's brothers, who is six years old, is taller than the patient.

He lives in the poor Jewish quarter, where a large family is crowded into a few rooms. The father is an aged carpenter, and provides only a meagre existence.

When the child was nine months old he is said to have had convulsions, which occurred at intervals and lasted until he was two years of age. He had typhoid fever when he was four years old. He was nursed at the breast until his second year; no exact history of the early feeding can be elicited.

He presents himself at the clinic, owing to the pain which he experiences in sitting down, caused by the fact that the coccyx is directed forwards in an almost horizontal direction.

He is 3 feet, 5 inches tall; the cranium is large and is square, the circumference is 53 cm., the biparietal diameter is 15 cm., the occipito-bregmatic is 18 cm., the bifrontal is 14½ cm.

The thorax is slightly depressed, laterally; the costochondral articulations are enlarged, though not markedly. The clavicles are bent, the bending being particularly marked near the acromial and sternal ends. The epiphyses of the upper extremity are unusually prominent, especially at the elbow and the wrist. The whole arm is very short, the fingers are short and spadelike. The humerus from its head to the tip of the condyle measures only 5 inches.

The forearm from the olecranon to the styloid process measures 6 inches. The humerus appears curved and twisted on itself. All the joints in this extremity seem relaxed. This condition is particularly marked in the wrist joint. The muscular strength of arms, wrist and hand tested roughly is found to be weak. An examination of the lower extremities shows enlarged epiphyses at knee and ankle. The legs appear bowed when

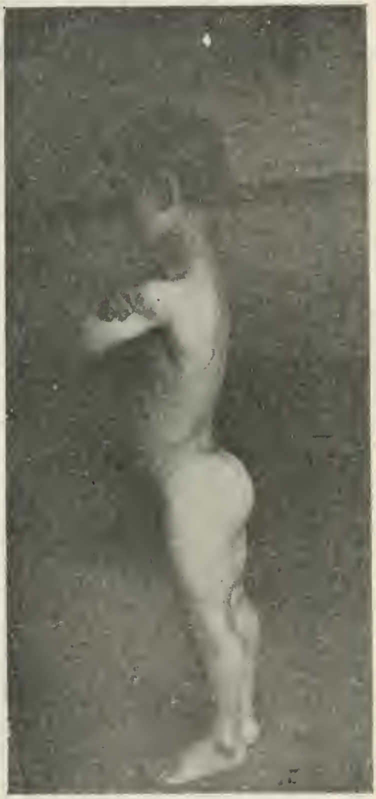
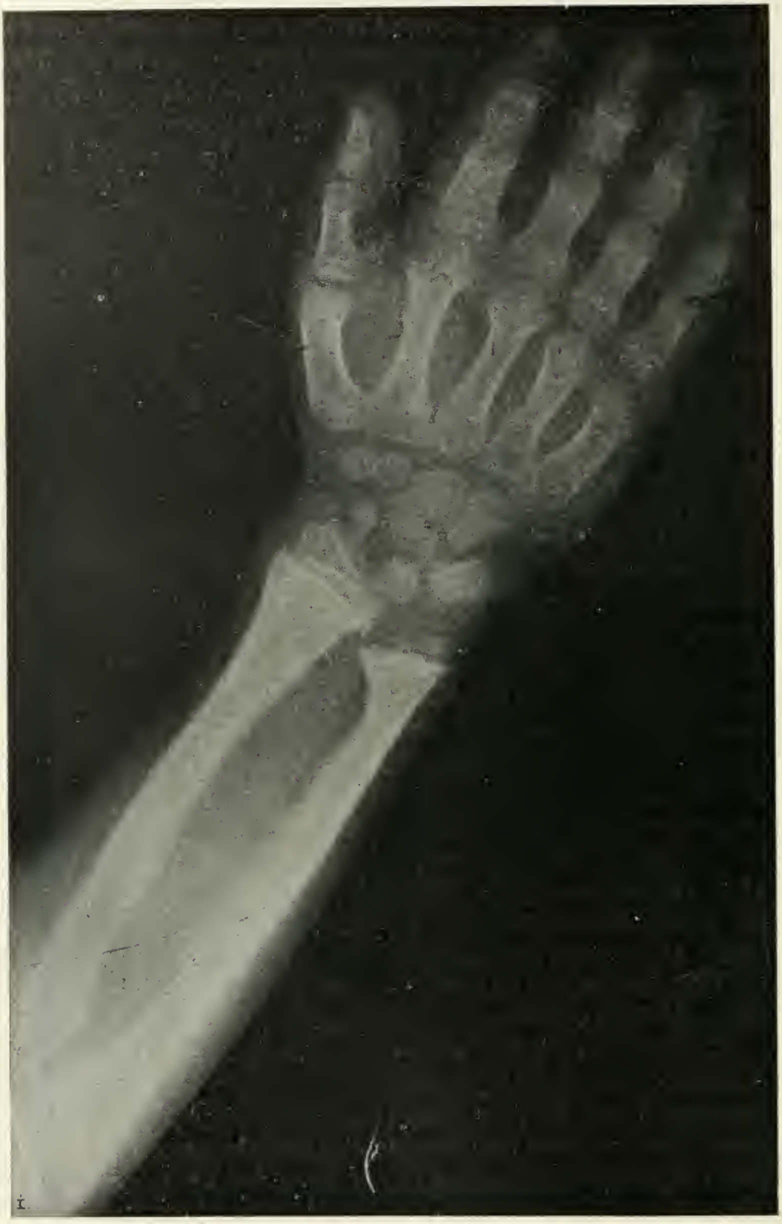
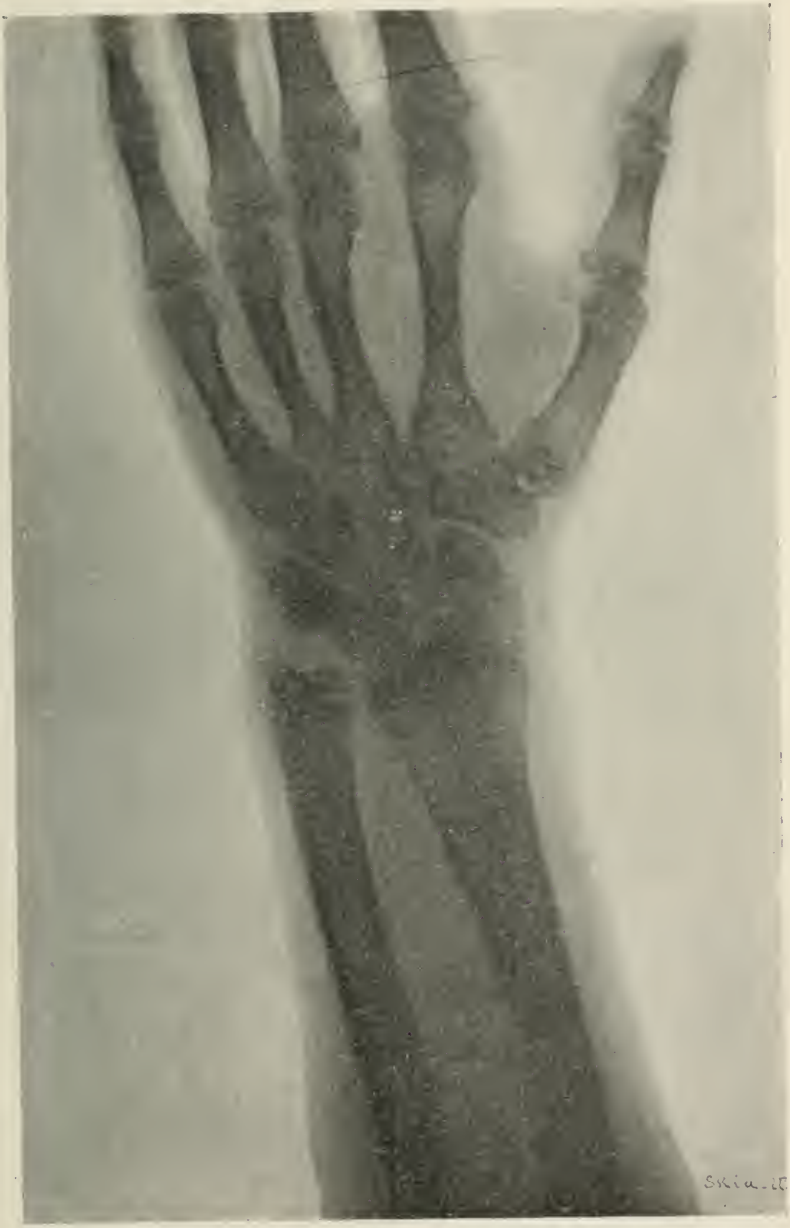


Fig. 2. RICKETS IN A BOY OF TWELVE YEARS, SHOWING EXTREME LORDOSIS.



Skiagram 1. SHOWING ARM OF RACHITIC PATIENT.



Skiagram 2. SHOWING ARM OF A NORMAL CHILD.

the patient walks, though from the skiagram we learn that the bones are not materially bent inward; the bowing then is more apparent than real, and depends upon the relaxation of the knee joint. The entire limb is short, the distance from the perineum to the floor is 15½ inches, and from the anterior superior spinous process to the floor is 20 inches. The circumference of the knee is 10 inches, and of the ankle 7 inches. The patella is well developed.

The pelvis is tilted forward. If the photograph of the patient showing the side view be examined, the extreme lumbar lordosis will explain the position of the sacrum and coccyx in the skiagram. Its upper portion is directed horizontally backwards, and in its lower segment it is sharply bent upon itself. The coccyx is deflected anteriorly, and can be seen as a shadow in the skiagram. Upon introducing the finger into the rectum the tip of the coccyx is felt unusually movable, and makes nearly a right angle with the rectum.

Pelvic measurements were made in our patient and in a number of other male children of about the same age. A comparison of the figures merely shows the diminished size of our patient's pelvis in the antero-posterior and transverse diameters.

TABLE, SHOWING MEASUREMENTS OF THE PELVIS, COMPARED WITH THOSE OF THREE NORMAL CHILDREN OF THE SAME AGE.

Name and Age of Patient,	I. R. Our 12 Year Old Patient.	G. F. 11 Years, 6 months.	M. G. 11 Years.	M. D. 12 Years.
Distance between Ant. Superior Spines,	18.5 cm.	19⅝ cm.	19½ cm.	18 cm.
Distance between Crests of the Ilia,	16 cm.	20⅝ cm.	21¼ cm.	20 cm.
External Conjugate,	11½ cm.	14 cm.	13 cm.	13¼ cm.
Bistrochanteric,	20 cm.	22⅞ cm.	21¾ cm.	22½ cm.

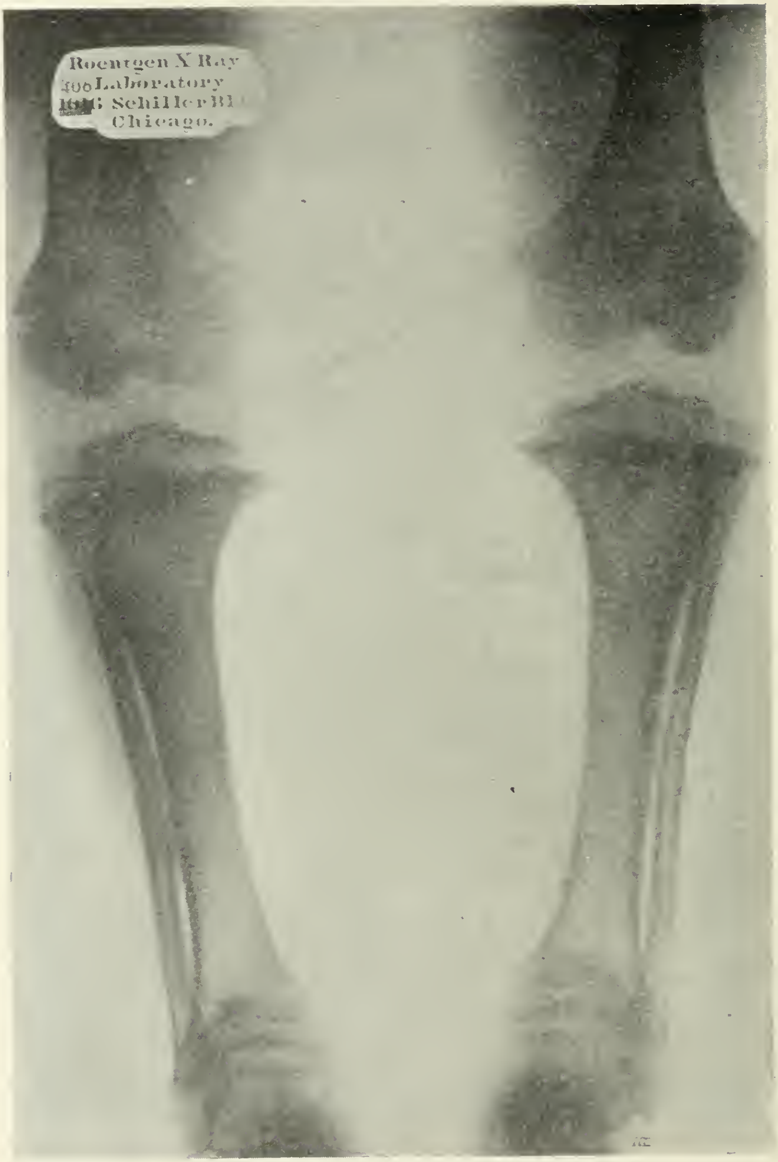
DESCRIPTION OF SKIAGRAMS.

SKIAGRAM NO. 1.—The shaft of the radius shows an abnormal amount of curvature. The upper epiphysis is small; the lowei epiphysis is not of normal shape, it is only slightly in contact with the semilunar bone, and not at all with the scaphoid. The lower epiphysis of the ulna is very small and seems to cover but a small part of the lower end of the shaft. There is no trace of the styloid process. The shaft is curved backward and is twisted. At about the center of the bone there is an abnormal thickening. Above and below this thickening there is an abrupt narrowing. The upper end of the shaft is fairly well developed. The upper epiphysis is visible, though it appears rudimentary.

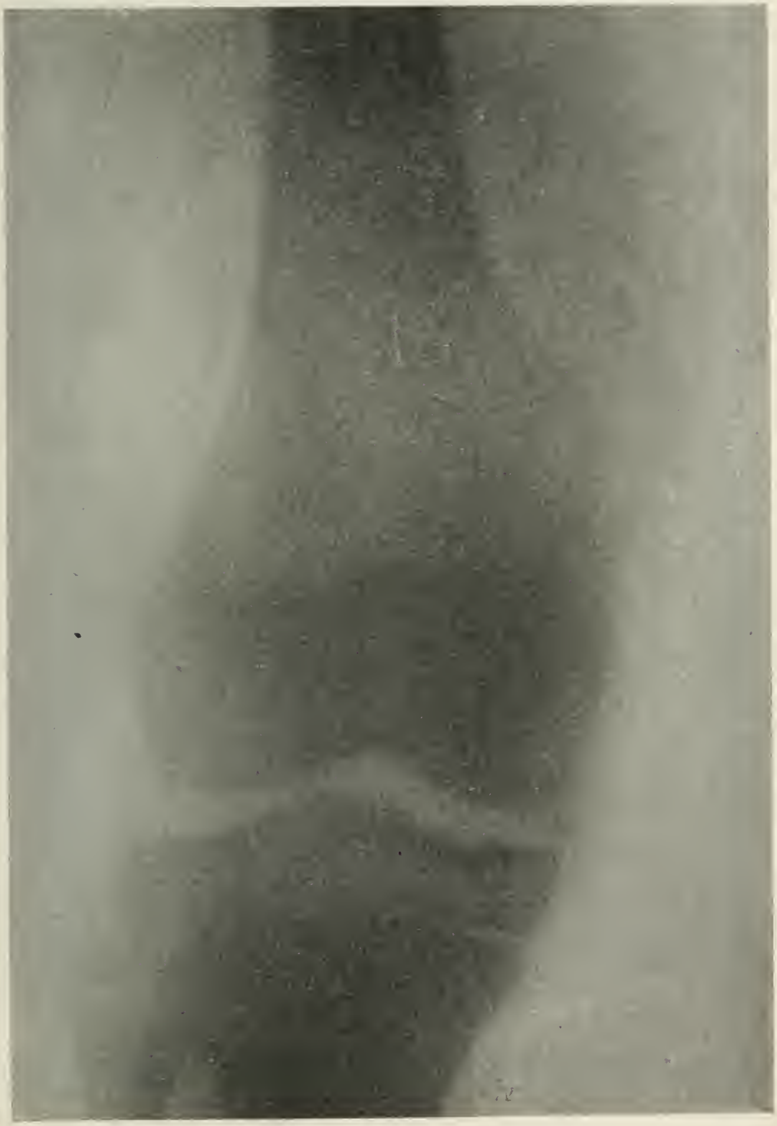
The phalangeal epiphyses do not deviate from the usual type. In the first metacarpal bone the lower end appears normal. Examination of the upper end of this bone shows that the base is separated. The second, third and fourth metacarpals appear normal. The metacarpal of the thumb shows two epiphyses, of which the digital one is abnormal. The carpal bones are small, irregular and unshapely, and are separated from one another by great spaces. The trapezium and trapezoid are small and globular and have no resemblance to the usual shape. The os magnum and unciform resemble somewhat the natural type of the bones. The scaphoid and semilunar have no resemblance to the normal. The cuneiform is large and presents a nearly natural conformation. The pisiform is unossified, and appears a mere shadow at the side of the cuneiform.

SKIAGRAM NO. 2.—Skiagram of the hand and forearm of a non-rachitic child of about the same age.

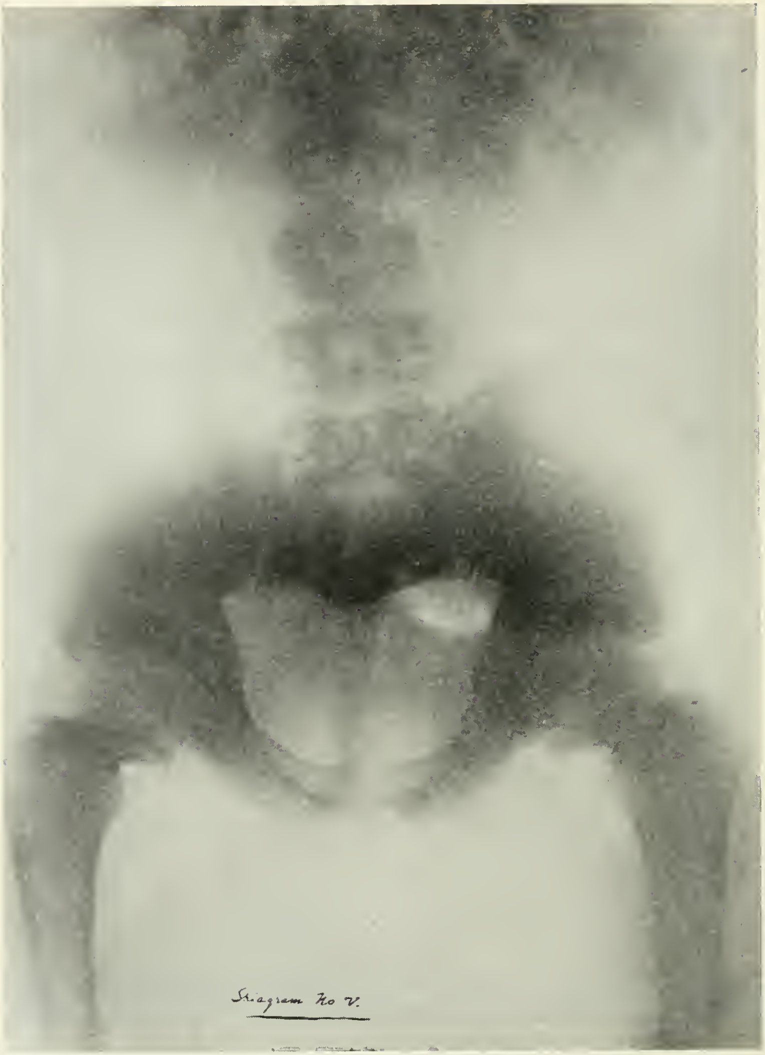
SKIAGRAM NO. 3.—In the femur the lower epiphysis is irregular in shape, thinner and smaller than is usual. The lower portion of the shaft is very irregular and poorly developed. There is an absence of the natural contour, and in place of the rounded inner tuberosity it slopes to an acute angle. A dark shading occurs at the lower end of the shaft. The significance of this shading remained for some time a question. The skiagram was shown at different times to Drs. McArthur, Van Hook, and Ridlon, of this city, who independently came to the opinion that the shading represented loops of blood vessels. It is known from a study of the pathology of the disease that vessels invade the car-



Skiagram 3. SHOWING LOWER EXTREMITY OF RACHITIC PATIENT.



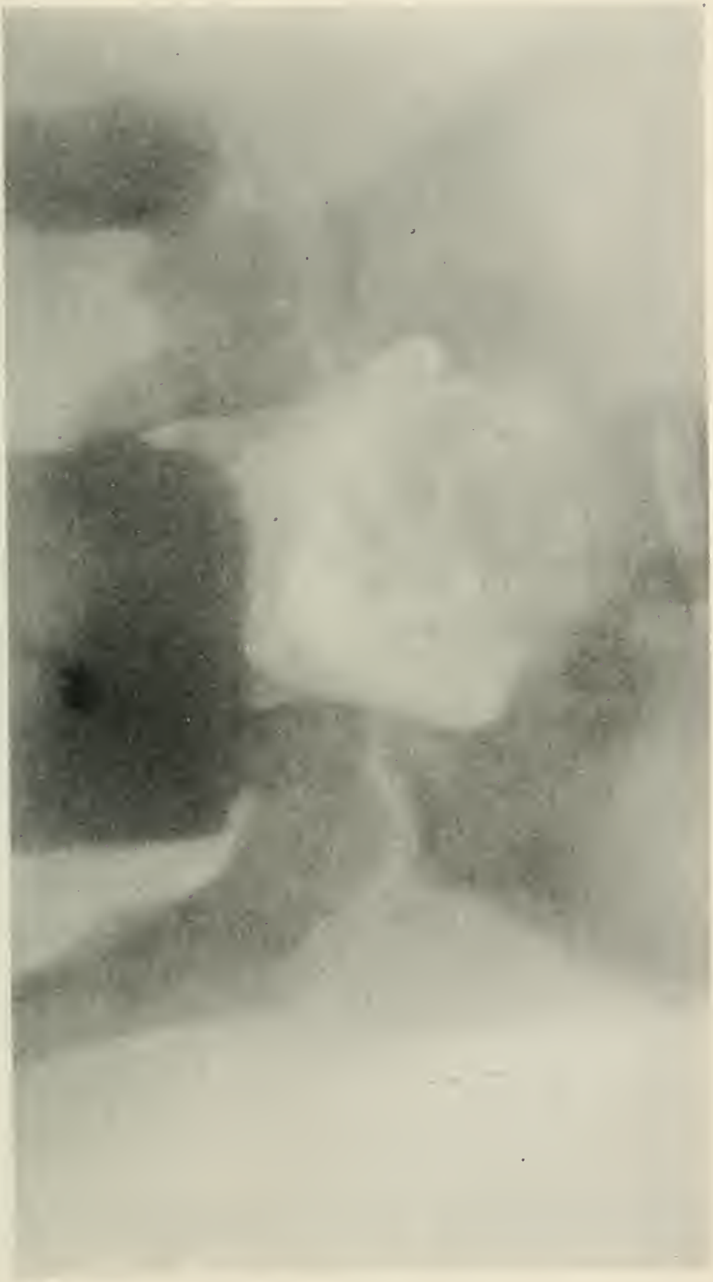
Skiagram 4. SHOWING KNEE OF A NORMAL CHILD.



Skiagram 5. SHOWING PELVIS OF RACHITIC PATIENT.

tilage and enlarge greatly, so that they appear like hemorrhages or blood spaces.

The upper and lower epiphyses of the tibia are ossified, but not united. The shaft is short and thick, the ends are large, tending to form acute edges. The crest is very irregular. The tibia comes to lie close to the fibula in places; this is due espe-



Skiagram 6. SHOWING PELVIS OF A NORMAL CHILD.

cially to the curves in the fibula. The shaft of the fibula is unusually short. It is quite slender, and very much curved. The upper and lower epiphyses are well developed, and are not united, which is the rule for children of this age. The astragalus and os calcis appear to be well developed.

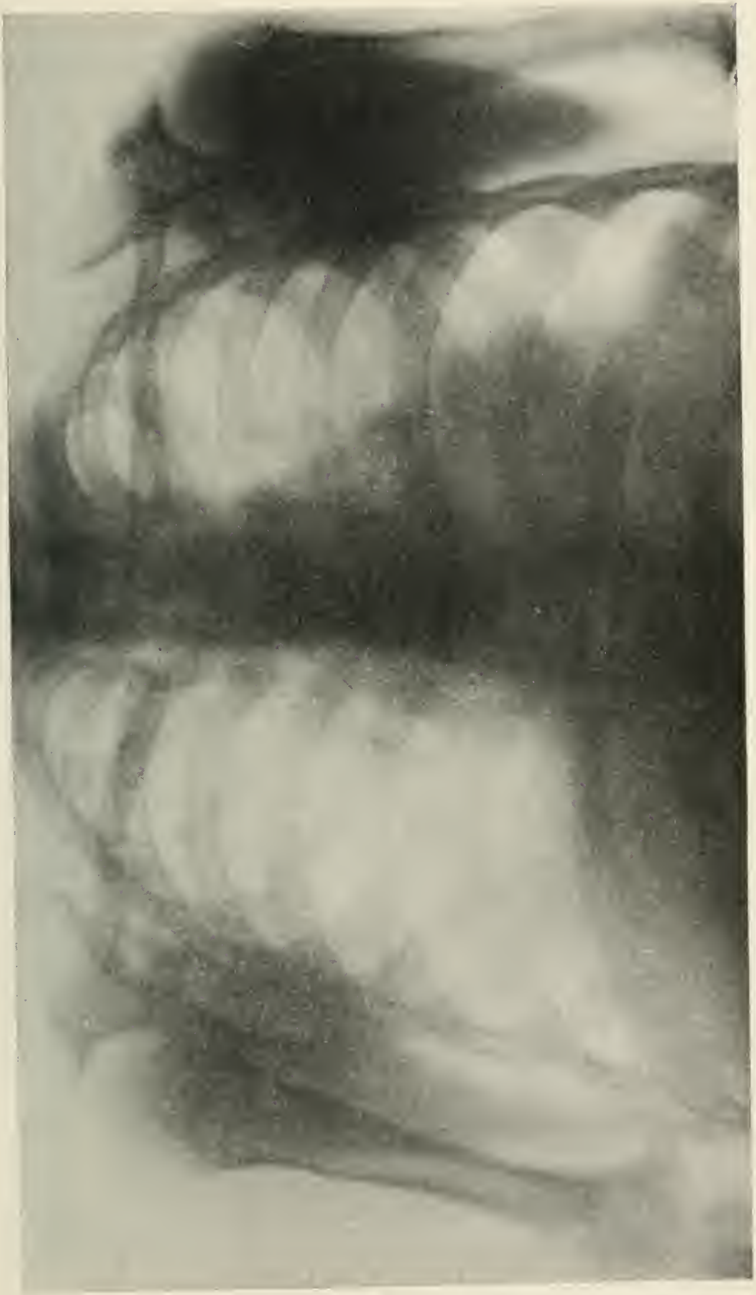
SKIAGRAM NO. 4.—Shows a nearly normal knee of a non-rachitic child of about the same age.

SKIAGRAM NO. 5.—The whole pelvis is tilted forward. The acetabulum appears to be shallow. The pubic rami and symphysis are diminished in height, and show a lessened slant upwards. The space between the anterior ends of the rami is greater than normal. On comparing this skiagram with the skiagram of a non-rachitic pelvis from a child of about the same age, it is observed that in this picture the obturator foramen is not seen, and also the space representing the articulation of the ilium with the ischium and pubes is absent, or nearly absent. This is due to the fact that the pelvis is tilted forward, and is viewed on the slant. Owing to this forward tilting, and to the lordosis, the sacrum is directed almost horizontally backward, consequently a small portion of it and a shadow of the coccyx is shown in the picture.

Examining the upper portion of the femur, it is noted that the trochanters are not united; this is normal, but they are much nearer to one another, and appear to be more on the same level than is usual. It is observed that more than the ordinary amount of the great trochanter is developed from the shaft. The neck is short and thick, and is more nearly at right angles to the shaft than is commonly observed. This, together with the peculiar relation of trochanters to each other, and to the neck, gives the upper end an impacted appearance. The upper epiphysis is only partially united.

SKIAGRAM NO. 6.—Shows the pelvis of a non-rachitic child of about the same age.

SKIAGRAM NO. 7.—In the clavicle the curvature is increased. It is curved backward and downward at the acromial end, and forward and upward at the sternal end. The development at the sternal end is poor. The supra-and infra-clavicular spaces are deepened. The sternal end of the shaft is very broad. In the



Skiagram 7. SHOWING THORAX OF RACHITIC PATIENT.

humerus the upper and lower epiphyses are not yet united. The shaft is short and thick, and appears twisted; the lower ends are greatly developed, and show sharp edges. The ribs appear broad and irregular, and the free sternal ends are clubbed in places.

4008 GRAND BOULEVARD.

Dr. O'Dwyer's Death and the Foreign Medical Press.—The *Münchener Mediciniscke Wochenschrift* recently presented the photograph of Dr. O'Dwyer in its gallery of prominent medical men, together with a sympathetically written biography. The death of Dr. O'Dwyer has called forth many laudatory comments and expressions of sincere sorrow from the European medical press generally.—*Philadelphia Medical Journal.*

Duration of the Infection of Whooping-Cough. (Weill, *Correspondenzblatt für Schweizer Aertze*, September, 1897).—The author some years ago questioned the generally acknowledged statement that whooping-cough remains infectious during the period of the characteristic spasmodic cough, and advanced the theory that the infection ceases at the end of the catarrhal period. His recent observations during three epidemics have verified his theory, he being able to trace the infection, not to those with a well-developed cough, but to the brothers and sisters of such cases, the brothers and sisters being presumably in the earliest stage of the disease. He has further corroborated his theory by exposing a hundred children who had not previously had whooping-cough, to possible infection from children with well-marked spasmodic cough, and out of the hundred only one was infected, and that one was in contact with a case in the very commencement of the spasmodic period. The author urges the importance, when whooping-cough breaks out in a family or school, of the isolation, not of the cases with a developed whoop, but the isolation of the other children who have not yet had whooping-cough. Dr. Weill's theory, if correct, will so revolutionize the rules for the management of whooping-cough that it deserves the most careful consideration.—*Scottish Medical Journal.*

CYCLIC VOMITING. A BRIEF REVIEW OF THIS AFFECTION AS ILLUSTRATED BY A TYPICAL CASE.

BY H. B. WHITNEY, M.D.,

Professor of Medicine in the University of Denver; Visiting Physician to Arapahoe County Hospital and to the State Home for Dependent Children, Denver.

Edward G., aged eight and one-half years, was seen by me for the first time on Friday, June 22, 1898, at 6 P. M. I will first describe the attack for which I attended him, and then state certain facts of his personal and family history.

On Thursday, June 21st, his parents had noticed certain symptoms which they had learned by past experience to be the usual precursors of an attack of gastric disturbance. There were slight pallor, a dark appearance about the eyes, restlessness during sleep, a coated tongue, and particularly a heavy breath. They had, therefore, kept him in bed for twenty-four hours, and upon a very limited fluid diet. At the time I saw him nothing further had developed except the passage of one or two loose stools, and the appearance, within a few hours, of a little fever.

On examination I found the boy fairly well nourished, though on the whole rather delicate in appearance. He was bright and cheerful. The pulse was 120 and regular, temperature 101° in the axilla, respiration normal. The tongue was moderately coated and the breath slightly offensive. The lungs and abdomen were negative, except that the latter was moderately retracted, and became quite markedly so before the termination of the attack; it was nowhere tender on pressure. On examination of the heart the usual precordial enlargement of childhood was found, but no more than at this age might be considered to be within normal limits; the right border of precordial dulness was about one-half inch beyond the right sternal margin, and the left border corresponded to the mammillary line. At the base, heard loudest in the second space close to the left sternal border, was a slight systolic souffle. I may say here that later, on the 24th and 26th, this souffle had entirely disappeared; and I may also add that I could see no reason for suspecting any organic lesion of the heart, though this same souffle had been noted by previous attendants.

On the following day—the 23d—about noon, although for thirty-six hours or more nothing had been taken by the mouth except a little calomel and teaspoonful doses of cold water, the boy began to vomit, and this vomiting continued off and on for about twelve hours, independently of anything taken into the stomach. The ejected material appeared to be a sour, watery mucus, and once contained numerous small shreds of clotted blood. Meanwhile the general condition had not changed; there was still one or two degrees of fever, and an occasional loose stool, with perhaps slightly increased restlessness. There was no headache, and absolutely no abdominal pain or tenderness.

On Sunday, the 25th, under practically no medication, the condition was much improved. There was no further vomiting or even nausea, and the temperature was about normal. On the day following coffeespoon doses of malted milk were administered and retained; and the quantity was then rapidly increased, so that by the afternoon of Tuesday, the 26th, the milk was being given at the rate of three pints in the twenty-four hours. The stools had now become nearly normal, and an uninterrupted convalescence ensued.

This attack would be of little interest of itself, but when it is learned that it had been preceded, at strikingly uniform intervals, by many others of almost identical character, the case acquires importance, and it becomes evident that we have to deal here with that somewhat rare and extremely interesting condition called cyclic vomiting.

The child's personal and family history is, in brief, as follows: His mother is a strong, healthy woman of negative ancestry, except that her father had gout. His father is tuberculous, although at present in excellent general condition and apparently recovered from his former phthisis. An aunt (of the father's) was insane. One of the father's brothers died—probably by suicide—after six months of insanity, and a sister died of rapid consumption during which she suffered for a month from some form of mental aberration.

The lad himself was one of twins, the other having died at the age of two and one-half years. He had always been a strong and hearty child, though rather high-strung and nervous, up to the age of six years, when he had a mild case of scarlet fever without apparent complications or sequelæ. He had never had convulsions or any other form of nervous disturbance; and his digestion had always been good, with the exception of a single short attack of gastric disturbance at the age of four, thought to be due to the ingestion of a considerable quantity of quince jelly.

On September 14, 1896, he had his first attack of periodic vomiting. It came on without known cause and was particularly severe. For five days the vomiting was absolutely uncontrollable, and it was attended by an extreme degree of exhaustion and collapse. At one time there was very considerable narcosis for several hours, attended with slight delirium; at another there was marked coldness of the right arm and leg. The pulse at one time reached 190, without much fever; it was also irregular, and there was thought to be a serious lesion of the heart. The whole condition was very alarming, and was regarded by the attending physicians as dangerous.

Following this first attack came five others at strikingly uniform intervals, *viz:* On December 23, 1896; March 20, 1897; May 20, 1897; August 18, 1897, and November 18, 1897. It will be observed that with the exception of one interval of two months, these attacks were exactly three months apart, even almost to the very day of the month. During the paroxysm of August 18th, small pieces of grass were ejected by the stomach and found in the stools; and it was discovered that on the day before the boy had "played horse" in an unusually realistic degree. But with this exception these attacks were all alike; no ascertainable cause, prodromal period of twelve to twenty-four hours, vomiting for eighteen to thirty-six hours, then sudden improvement under practically no medication, and rapid recovery under careful diet. Sometimes there was more prostration than at others, and almost always there was a little blood —once a teaspoonful—in the vomitus. In the intervals between the attacks—and especial attention is called to this fact—there was never any digestive disturbance whatever, more than occasionally a slightly restless sleep attributed by the parents to some trivial indiscretion as to food. The diet, however, has always been regulated with the greatest care, and no adequate cause for the attacks has ever been discovered. They have never been attended by headache or abdominal pain.

The affection of which the above history appears to be a striking illustration, was first described by Leyden in 1882 as periodical vomiting. Since then a number of writers have reported similar cases, although the condition is comparatively rare, and still finds but cursory recognition in a few of the various text-books. Snow reported a case of unusual severity before the American Pediatric Society in 1893, and it then appeared that many of those who participated in the discussion had met with instances of the same affection. Holt gives an excellent description of it in his Diseases of Infancy and Childhood; and Rachford (ARCHIVES OF PEDIATRICS, 1897,) has pointed out its probable relation to the so-called uric acid diathesis.

It may possibly be of service to again describe the salient features of this peculiar condition.

First, as to the clinical picture: A child, possibly delicate, but often in previously perfect health, after a prodromalperiod of twelve to twenty-four hours, is suddenly seized with vomiting. During the prodromal period the symptoms, which are not very pronounced, consist in lassitude, coated tongue, offensive breath, rings about the eyes, loss of appetite, and sometimes a sense of discomfort or distress in the epigastrium. The vomiting is of sudden onset, and often peculiarly severe and uncontrollable. It is excited by the slightest ingestion of food or drink, or it may be independent of either. At first, whatever food may be in the stomach is expelled, and afterward the vomitus consists of a moderate amount of strongly acid watery mucus very often streaked with blood. The latter is especially apt to follow the violent and painful retching which is usually present. This vomiting continues at longer or shorter intervals for from twelve hours to four or five days. There is usually a rise of temperature of two or three degrees at the outset, and a slightly lower fever continues until the cessation of the vomiting. Meanwhile the general condition is often markedly affected, and there is usually a degree of prostration which seems out of proportion to the local manifestations. The abdomen is almost invariably retracted. With the abrupt cessation of the vomiting there is usually a rapid return of appetite and of the normal digestive processes.

Such is the course of the usual, and therefore most typical, paroxysm. The individual attack, may, however, vary widely from the above description. It may, especially in children, begin with a convulsion. There may be headache, and a severe epigastric pain may suggest the gastralgic attacks of older people, many of which are thought by Rachford to be etiologically related to cyclic vomiting. Fever may exceptionally be absent, especially in older children and adults. Prostration is often extreme, even dangerous, with a very rapid, weak and irregular pulse. There may be a considerable degree of narcosis, or great restlessness and even delirium. Sometimes vaso-motor disturbances are prominent, such as great coldness of the feet, or of one side of the body. The bowels may be slightly loose and offensive, as in the case reported; oftener they are constipated with whitish or oily stools at the beginning of convalescence. Occasionally dyspnœa has been noted without any corresponding pulmonary lesion, and probably therefore to be regarded as a reflex phenomenon allied to the so-called asthma dyspepticum.

These gastric crises occur at intervals varying from six weeks to six months. Usually in the individual case there is a marked tendency to periodicity. When the appointed time has elapsed the paroxysm comes—in spite of the utmost care as to diet and the avoidance of all psychical disturbance, although at times it may possibly be precipitated by such influences. During the intervals, while these patients may, of course, be dyspeptic, there is in the majority of cases a condition of apparently perfect health, the digestion especially being unimpaired.

With regard to the *pathology* of this condition the conclusion would seem to be unavoidable that we have to deal with a gastric neurosis. A gastritis does not occur at regular intervals, has an adequate and usually discoverable cause, is attended with more pain, and is of indefinite duration. Much the same may be said of a simple gastric indigestion; we certainly do not expect periodic recurrences, and here such violent vomiting rarely persists after the stomach is once thoroughly emptied. Furthermore, there is much to suggest a neurosis in the analogy which exists between these crises and those of migraine and other nervous disorders. Migraine is often quite regular in its recurrence, and attended also by a neurotic vomiting. In certain cases the migrainous attacks have alternated with those of the purely gastric condition; and Rachford has observed gradual transition with advancing youth from early cyclic vomiting to a definite migraine. Again, in gastralgia we have a neurosis which frequently shows a tendency to periodical recurrence, and which has many points of resemblance to cyclic vomiting. Such, for example, are its apparent lack of association with any indiscretion in diet; the often definite duration of the individual attack; and the palpitation or other evidences of disturbed action of the heart, and the uncontrollable vomiting, which sometimes accompany the pain. For these various reasons, therefore, it would seem quite evident that cyclic vomiting is to be classed among the gastric neuroses.

Its *etiology* is a matter of much greater doubt. The vomiting has been thought by some to be purely reflex, but this would presuppose some focus of irritation which not only is undiscoverable in the majority of cases, but which, if present, would hardly be expected to operate at stated intervals. The same is true of a purely secretory disturbance of the stomach such as hyperacidity. An excess of hydrochloric acid was found in the vomitus of Snow's case, but even if this should prove to be constant it would have but little etiological significance. We must look further back for some fundamental disturbance of the nervous system; and it is in this connection that the researches and conclusions of Rachford are of remarkable interest (see ARCHIVES OF PEDIATRICS, 1897, Nos. 8, 9 and 10). I need only remind the readers of this journal that Rachford has found a large excess of certain poisonous alloxuric bodies, particularly paraxanthin and heteroxanthin, in the urine of persons suffering from such crises as those of migraine and periodical vomiting. The gradual accumulation of such poisons in the blood of certain predisposed individuals would account satisfactorily for regularly recurring explosions of nerve irritation, especially those which, like cyclic vomiting, are possibly eliminative in their effect. At the same time it is, of course, not improbable that the exciting cause of the individual attack may occasionally lie in the stomach itself, or in certain emotional influences affecting the central nervous system.

Whether or not this affection be lithæmic in character it is certain that there are important predisposing factors. Age is one of these, nearly all the cases thus far reported having been in infancy or childhood. It is probable also that in most cases a decidedly neurotic taint would be discoverable, either in the child's past history or his parentage. It was so in Rachford's cases, and in the one reported to-day we find a thin, nervous, rather precocious child, in whose immediate ancestry are gout, migraine, tuberculosis and insanity.

The *treatment* of cyclic vomiting will of course depend greatly upon the theory which is adopted as to its causation and pathology. In any event, however, it would seem useless to subject such a child during the intervals to too rigid a diet in the common acceptation of the term. At the time of the paroxysm, also, it would appear that the digestive function is quite rapidly restored; and, while a certain degree of caution is necessary, it would not seem wise to be too slow about returning to a full diet. In my own case the administration of malted milk was begun in teaspoonful doses almost as soon as the vomiting ceased, and this was rapidly increased until in about twenty-four hours the boy was taking three pints a day. Little is to be hoped for from medication during the crisis; probably in a case of unusual severity good results might follow the subcutaneous injection of morphine.

The chief indication is of course to prevent the recurrence of the paroxysms. Whether or not one is convinced of the lithæmic nature of this affection, it would certainly be wise to remove any discoverable source of reflex irritation—such as helminthes, or an adherent prepuce, or emotional disturbances. Over-study should be sedulously avoided; in many cases it would perhaps be best to remove the child from school altogether. Free exercise in the open air, with the avoidance only of too exciting sports, should be encouraged in every way, and should occupy a large part of the child's daily life. The diet must be simple and non-stimulating. All kinds of simply-prepared farinaceous foods, milk and eggs, fruits in abundance and meat in moderation will recommend itself to all, and especially to those who believe that cyclic vomiting is an alloxuric neurosis. Rachford would prohibit butcher's meat, and allow at most fish, oysters and possibly poultry. Medicinal treatment along the same lines would consist, primarily, in the use of large quantities of fluid, especially milk, and some one of the various lithia waters. The salicylates are also of great service—either as salol, given in capsules after meals; or as Merrill's acid salicylicum (grs. 5 to 10) with potassium bicarbonate enough to dissolve, taken largely diluted at meal-time. Constipation should be guarded against with especial care.

726 FOURTEENTH STREET.

Clinical Memoranda.

A CASE OF MENINGOCELE.*

BY A. MORGAN VANCE, M.D.,
Louisville, Ky.

The author was called to see a child aged five months, with a tumor on the skull just over the right eye. The mother had been married eight years and this was the first baby; it was delivered with forceps after a hard labor; it was well-developed and seemed natural in every way except for the tumor mentioned. Transmitted light showed the tumor to be translucent, and he took it to be a meningocele. It measured twelve inches around its base. According to the mother's statement the tumor was noticed soon after birth; it was very small at first and had gradually increased in size until the time seen by the author.

Aspiration was advised to determine size of the cleft through which this meningocele came; this was consented to and he aspirated it at half past ten o'clock in the morning, removing eight and a-half ounces of light straw-colored fluid, by introducing a fine aspirator needle into the scalp some distance away and carrying it under the skin to the base of the tumor. This little operation was done without anesthesia, and the child showed no symptom of pain. At twelve o'clock the same day the cap he had arranged over the child's head came off. Wishing to know the cause, he again visited the child and found the tumor had refilled to two-thirds its former size.

After aspiration the sac had collapsed and the cleft could be felt just in the suture between the parietal and frontal bones, about as large and as long as an index finger. He was surprised that the sac should have refilled so promptly, and by the morning of the next day it had become distended even larger than when first seen. The child had no symptoms. The anterior edge of the cleft of the bone seemed to be exaggerated; the suture was lifted up edgewise, resembling the top of a picket fence, which could be felt along the edge of the tumor even before emptying it. He then recommended operation, to dissect out the sac and close the dura, possibly breaking down the spiculæ of bone and closing the cleft. He suggested this without promising anything in the way of benefit, fearing that by shutting off the increased secretion of fluid, there might be over-accumulation, pressure, convulsions, and paralysis.

---

*Abstracted from the proceedings of the Louisville Medico-Chirurgical Society.

When relief was afforded by aspiration, the membranes contracting below undoubtedly forced the fluid already present, into the sac, and the fluid was not actually secreted, as it seems hardly probable in two or three hours that much fluid could be secreted.

There is very little available literature upon this subject. It is rather a rare condition, especially as to the extent and size of the cleft. On the side of the head at the base of the tumor is a scar produced by the forceps in delivery; whether that has anything to do with the case or not the author does not know. It is a case that will be rather trying to the surgeon, and while the parents consented to the operation suggested by the author, he has not yet been called upon to carry out his proposition.

THREE CASES OF NOCTURNAL ENURESIS IN ONE FAMILY.

BY J. P. ARNOLD, M.D.,
Philadelphia.

The occurrence of nocturnal incontinence of urine in three children of one family, without demonstrable cause or any history of heredity, is interesting. The father and mother are both very healthy and are not of neurotic temperament. There are five children living, and four died in infancy, of summer diarrhœa. The ages of the children are as follows:

Henry, 14 years, incontinence.
Ella, 13 years, incontinence.
Benjamin, 11 years, is not affected.
Anna, 10 years, incontinence.
Cortland, 9 years, is not affected.

My attention was first called to these children four years ago, when the eldest boy was brought to me with the statement that he had had both diurnal and nocturnal incontinence since birth.

An examination of the child revealed nothing abnormal except a rather long and somewhat adherent prepuse. The urine was free from irritant properties. The boy was circumcised in order to remove this possible source of irritation. Instructions were given the parents as to the proper management of the boy, with the result that he succeeded in controlling himself during the day, but continued to wet the bed every night. In the course of a few weeks the case was lost sight of and I heard nothing further until within the past summer. The father then reported to me that the boy had improved very much and that he now only wets the bed occasionally, at night.

The two girls, who are apparently otherwise healthy in every respect, continue to wet the bed every night. Not much in the way of systematic treatment either moral or medical, has been carried out by the parents, though the necessity of such has been urged upon them frequently.

All of these children are of average intelligence and are ashamed of their condition. Whether the incontinence is due to a lack of perfect development of the vesical sphincter, to a failure upon the part of the child to assume complete voluntary control of this muscle, or to a hypersensitive condition of the reflex centres in the spinal cord, is a question. The latter condition seems the most probable, or it may be from a combination of these causes.

3722 WALNUT STREET.

CORNEAL ULCER.*

BY T. E. CONVERSE, M.D.,
Louisville, Ky.

I recently saw a little child five years of age, who has been suffering with a peculiar condition of the cornea for three weeks, according to the history obtained from the family. There was no history of an injury, but the condition of the cornea presented was as if a needle or a pin had been run through the substance of the cornea from the temporal side toward the centre, and a gray streak could be plainly seen through the corneal substance proper, ending at a little hard, button-like substance in the centre. There was no redness nor inflammation anywhere about the conjunctiva. The family physician said that the eye was noticed in this condition about two weeks before I saw the case.

There is now no inflammatory action about the structures of the eye; the pupil responds perfectly to light; there is no iritis and no congestion of the conjunctiva. When I first saw it I thought it was a phlectenular trouble, but am now in doubt. It interferes more or less with vision, and the child complains of a constant burning sensation in the eye.

---

*Reported to the Louisville Ophthalmological and Otological Society.

I treated it at first as though it was an ulcer of the cornea, although it did not have the ordinary appearance of such a condition. There has been no change for three weeks, the time that the child has been under my observation; it has not grown larger, nor has it diminished in size. I have been using the yellow oxide of mercury salve in the eye. It is now five weeks since the trouble was first noticed.

In discussing the case, Dr. J. M. Ray expressed the belief that the condition was a corneal ulcer with the burrowing of pus into the proper corneal tissue or even deeper. He had seen ulcers no larger than a pin head do this and open into the anterior chamber, producing hypopyon.

Ovariotomy for Sarcoma in a Child.—Hoffmann, of West Virginia (*American Journal of Obstetrics*, September, 1897), was consulted about a child twenty-two months of age. She was suffering from acute peritonitis, vomiting was constant, and the temperature high. A tumor filled the left side of the abdomen; at the time it was simply noted that there was dulness over that region. Two months later signs of precocious puberty appeared, the breasts enlarged, and a periodical discharge of blood issued from the vagina. The abdomen became very swollen, emaciation was observed, and when the child was thirty-three months old another attack of peritonitis occurred. Hoffmann accordingly operated when he found that the complications did not appear likely to subside. The tumor was a cystic sarcoma of the left ovary, containing about seven pints of fluid; the solid part weighed 2½ lbs. The pedicle was between two and three inches long; the uterus almost as large as an adult nullipara. There were free parietal adhesions. The patient rallied, but the stomach remained very irritable, and the child died thirty-three hours after the operation. All, or nearly all, ovarian tumors hitherto removed from infants have been dermoids. Hoffmann finds that his is the first case where the tumor was specified as sarcomatous.—*British Medical Journal.*

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

NOVEMBER, 1898.

Edited by FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician,
Hospital for Scarlet Fever and Diphtheria; Consulting Physician,
Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241–243 WEST 23D STREET, NEW YORK.

THE CEREBRAL PARALYSES OF CHILDREN.

Cerebral paralysis during infancy is more common than was formerly supposed. The researches of modern years have added much to our knowledge of the subject, and with added knowledge its importance has been more fully appreciated. Classified according to the period of development, cerebral palsies are of three types—those occurring before, during, and after birth.

Pre-natal paralysis is the least common of these three varieties. It may be due to large cerebral defects, and is then known as porencephaly. In this condition, large portions of the cerebral substance are lacking; in some instances a whole hemisphere may be absent.

Another cause of pre-natal paralysis is *agensis corticalis*, which implies a defective development of the cellular elements of the cortical or pyramidal cells. This condition is found in neurotic family idiocy, several cases of which have been reported in these pages. A third cause for this form of paralysis is intracranial hemorrhage. This, however, is very rare as compared with the hemorrhages which occur at the time of birth.

In those cases marked by defective development, idiocy is a prominent symptom; convulsions are rare. The reason for this is clear. Defect of cerebral substance or of nerve elements is necessarily followed by loss of mental power. Convulsions being due to irritable or unstable nerve elements are not to be expected when the lesion consists of absence of those elements. A greater or less degree of paralysis is present, the type usually being diplegic or paraplegic.

Except in the form of pre-natal paralysis due to non-development of the brain, the various cerebral palsies of children present symptoms in many respects similar. Coma and convulsions are more common than in the brain paralyses of the adult. This is due to the fact that in infants the paralysis is due largely to cortical processes, while in adults it is more frequently due to intracerebral conditions. Frequent repetition of the convulsions often leads to epilepsy, while defective mental development is not infrequent. Epilepsy, therefore, and idiocy more or less marked, are the usual accompaniments of these forms of paralysis.

BIRTH PARALYSIS.

All authorities are now agreed that in the cerebral paralyses of infants the causes operative at birth are far more important than those which occur before. Of these various causes, prolonged labor may be unhesitatingly placed as the first. The use of instruments is unquestionably less important than the prolonged compression of the head. "My own studies," says Sachs, "have proved that tedious labor is a more frequent and a more disastrous factor than instrumental delivery." Holt places tedious labor at the head of the list of causes, the other causes as enumerated being breech presentations, instrumental labor, and premature birth. Peterson also regards tedious labor as the chief cause, instrumental labor being considered by him as of far less importance. Collins says that liability to injury of the brain is in direct proportion to the duration of labor.

A very important lesson, therefore, is the fact that prolonged labor is more dangerous to the child than the proper use of instruments. The reason for this is evident when the pathology of the condition is considered. Meningeal hemorrhage is the chief pathological factor. Asphyxia causes obstruction in the circulation of the brain, in which the collateral circulation is imperfect. The vessels, therefore, subjected to this prolonged pressure, easily become plugged or ruptured, far more easily, in fact, than much greater pressure would cause if only temporarily applied.

As to the type of paralysis, writers on neurology have usually regarded hemiplegia as particularly common. Holt, however, asserts that birth injuries are far more apt to cause diplegia and paraplegia. His observations certainly demonstrate that fact. These discrepencies are explained by the fact that Holt's observations have been made upon young infants, while the neurologist sees chiefly the older cases that have survived the first few years of life.

The symptoms of birth paralysis may be motor, sensory, or psychical. Sensory symptoms are, however, uncommon. The motor symptoms appear as paralysis in varying degree, contracture, convulsions, or various forms of choreic movement. The psychical symptoms are rarely entirely absent and consist in defective mental development. The extent of this defect may range from the slightest sluggishness to absolute idiocy.

Birth paralysis is to a large degree preventable. It is due more frequently to an error of omission on the part of the attending physician than to errors of commission. Prolonged and tedious labor is the most common cause. In deciding upon the course to be pursued in any given case, therefore, while the welfare of the mother should receive the first care, the welfare of the child should never be forgotten.

ACUTE CEREBRAL PARALYSIS.

The acquired cerebral paralysis of young children is frequently very obscure in its origin. In a majority of cases, in fact, the cause cannot be determined. It occasionally occurs during the course of the infectious diseases, particularly pertussis, and sometimes follows traumatism. The frequency with which convulsions occur at the onset has led some to assign this as a cause of the paralysis. Holt, however, believes that it is more probable that the convulsions are the result rather than the cause of the condition producing the paralysis. The lesions, according to the same observer, may be found in the blood vessels, in the membranes, and in the brain substance. While lesions in one or all of these tissues are usually found, autopsies have been reported by expert pathologists in which no lesions, gross or microscopical, could be discovered. The form of paralysis present is usually hemiplegia, but diplegia and paraplegia are occasionally seen.

Of no less interest than the paralysis itself are the rigidities and contractures by which it is usually accompanied. According to Sachs some degree of contracture is present in at least seventy-five per cent. of the cases of diplegia and paraplegia of all types of cerebral paralysis. The prognosis in these types is bad, first, as to the life of the child and, second, as to its physical and mental condition in case it survives. The prognosis in the case of hemiplegia is considerably better, but some deformity and paralysis is likely to remain even in favorable cases.

While the onset of the acquired form is usually sudden, convulsions and fever being very common, it is often impossible to decide with certainty whether a given case is congenital or acquired. It must be remembered that mild forms of birth paralysis are frequently overlooked until the child is six or eight months old. Fortunately the differential diagnosis between the various forms of cerebral paralysis is not of great importance, for the symptoms and prognosis depend more upon the type and severity of the paralysis than upon the time of its development. Neither does the treatment, except in the primary stages of the acquired disease, vary materially with the different forms. It is always unsatisfactory.

It is important for the reputation of the physician that cerebral paralysis in its mild form be recognized and its nature explained to the parents. The error is often made of mistaking it for the muscular weakness of rickets or marasmus. Such an error is naturally followed by a favorable prognosis and a promise of improvement, to the detriment of the physician's reputation, for the physical and particularly the mental defects tend to become more prominent with passing months.

THE BONE LESIONS OF RICKETS.

The paper by Dr. Abt in the present number, with its accompanying plates, is a most interesting and valuable contribution to the subject of rickets. The plates show the lesions of rickets in the late stages, which are quite different from those of the early stages. During the acute period of the disease there is excessive development of cartilagenous tissue at the epiphyses, and unusually active cell proliferation beneath the periosteum. This results in enlargement, which is often so great as to be clearly evident through the soft tissues. At the same time mineral matter is deposited in abnormally small amounts, the usual proportion of two parts of inorganic matter to one part of organic matter being sometimes reversed. The bones are thus rendered so soft and pliable that distortion may result from pressure or even from the traction of muscles. Deformity of the bones is, therefore, one of the most constant results of rickets.

On section of a long bone the epiphyseal areas are found to be enlarged, and much more soft and vascular than normal, the extremity of the bone being thereby increased in size. Owing to the rapid absorption of the medullary canal and the diminished deposits of organic matter beneath the periosteum, the shaft of the bone is found to be thin and soft. Section of one of the flat bones reveals great increase in the size of the trabecular spaces.

The bosses upon these bones consist of flat, spongy masses, so soft that they can sometimes be indented with the finger. The earlier stages of rickets are marked, therefore, by softening of the bones and by enlargement of the areas most seriously affected.

In the later stages of the disease, this very active proliferative process is slowly replaced by ossification. This process is sometimes rapid. As the spongy tissue is replaced by bone, contraction and condensation to a greater or less degree necessarily take place. The epiphyseal swellings diminish in size, and usually disappear; the beading of the ribs become almost imperceptible; the bosses upon the flat bones largely or wholly subside. This process of contraction frequently continues until the affected areas become smaller in size than in the normal bone. Not only do they become smaller, but the epiphyses are contracted and distorted, and small bones, like those of the ankle and wrist, lose their normal contour. This is what occurred in Dr. Abt's case. Many of the small bones have lost their normal appearance, and the epiphyses of the long bones have been so seriously injured as to have prevented normal growth in length.

Study of the pathology of rickets demonstrates the uselessness of attempting to cure that disorder by the administration of lime salts alone. If deficiency of lime salts were the only abnormality present, such treatment might be rational. But the lesions of rickets are not confined to the bones alone, and even in them excessive development of cartilagenous tissue and proliferation of sub-periosteal cells is as characteristic as the absence of mineral matter. Absence of inorganic matter is, in fact, but one element, and probably not the most important element, in the pathology of the disease.

Bibliography.

An American Text-Book of the Diseases of Children. Including Special Chapters on Essential Surgical Subjects: Orthopædics; Diseases of the Eye, Ear, Nose and Throat; Diseases of the Skin; and on the Diet, Hygiene, and General Management of Children. By American Teachers. (*Edited by Louis Starr, M.D., assisted by Thompson S. Westcott, M.D.* Second Edition, Revised. Philadelphia: W. B. Saunders. 1898. Pp. xvi., 1244. (Price, cloth, $7.00.)

The second edition of this excellent work presents many improvements over the first. Much of the matter of the original volume has apparently been revised, and several new chapters have been added. A chapter on modified milk and percentage milk-mixtures presents in concise and practical form the method of Dr. Westcott, whose original paper on the subject appeared in the first two numbers of this journal for the present year. Dr. Rachford's chapter on lithæmia is also new, and is a valuable addition to the work. Dr. Rachford's observations upon this very important condition are well known to the readers of the ARCHIVES. In the present instance they are admirably presented, and a study of the chapter will prove of the greatest practical value to the practitioner. Dr. Moore's chapter on orthopædics, also a new one, is excellent as far as it goes, but is not sufficiently extended to prove of great practical value.

The chapters in which we find the principal changes are those upon typhoid fever, tuberculous meningitis, scurvy, and hydrocephalus. It is to be regretted that the collective investigation of the American Pediatric Society on scurvy appeared too late to be utilized in this work. It must be said, however, that the conclusions would have been but little changed.

The method of constructing a book by a staff of collaborators has its advantages and disadvantages. A book on a broad general subject by a single author is more homogeneous, but is rarely of equal merit throughout. No single man can be equally good authority in every department of a subject as broad as that of pediatrics. While, theoretically, each subject of a composite work is written by the man who has had special experience, and can speak with authority upon it, practically a greater number of weak chapters are found in such a book than in the work of a single author. Some chapters are apt to be written in a hurried and careless manner, and are a serious disappointment to the editor as well as to his readers. The book of a single author is more homogeneous and consistent. It commonly covers the details of a subject more fully, and is more generally satisfactory. The present work presents very strikingly the advantages and disadvantages of the composite method. It must be said, however, that the disadvantages and the grounds for criticism are considerably less apparent than in the first edition. Some of the most glaring causes for criticism in the first edition have been removed. The second edition is a very excellent presentation of the subject of pediatrics, and is a credit to American medicine. From the standpoint of the book-maker's art, the volume is a superb one.

Congenital Occlusion of the Small Intestine.—Wanitschek (*Prager med. Wochenschr.*, August 25, 1898) reports the case of a child that for four days after birth had passed no feces or flatus. Celiotomy was performed and the small intestine was found much distended, ending in a blind sac, absolutely without connection with the cecum; a strand of connective tissue, however, extended from the cecum to the umbilicus. The entire colon, from cecum to sigmoid flexure, was narrowed to the size of a goose-quill. Enteroanastomosis was performed between the sac-like ending of the small intestine, and the sigmoid flexure, but the child continued to vomit, became weaker and weaker. and died the same evening.—*Philadelphia Medical Journal.*

Relapses in Measles and Mumps.—Feltz (*Gaz. Hébd. de Méd.*, Paris, 1896, No. 84) and Eonnet (*ibid.*, No. 87) observed two and four cases, respectively, of undoubted relapse after first attacks of measles, the recrudescence of the disease occurring within twenty days of the appearance of the first eruption. The two attacks were identical in character in every case, and could not have been due one to rötheln and the other to measles. Eonnet also states that he has observed 122 instances of second distinct attacks of measles in the same patient, 97 of whom were between six and thirteen years, and had suffered from it four years previously; 25 were aged from fourteen to eighteen, and whose first attack dated thirteen years back.—*Edinburgh Medical Journal.*

Current Literature.

MEDICINE.

Thomson, John: Imbecility in Infancy. (*Scottish Medical Journal.* 1898. Vol. ii., No. 3.)

The author first considers *microcephalus* as a cause of idiocy. In infancy the child is well nourished and of a fair size, although he is usually undergrown in later life. His limbs are large and his muscles are strong, so that his grip is powerful although unintelligent. He is more or less late of walking, and when able to do so has a peculiar gait, carrying his head in front of him in an even more marked way than other imbeciles do. Many of these children have convulsions. Mentally they are very dull indeed, and quite apathetic unless they are hungry.

The prognosis as to life is not very good; a considerable proportion of these children die before they are old enough to be admitted into an institution. When they survive infancy they may live to a fair age, as in the case of the so-called "Aztecs," who have been under the observation of the medical profession and of the public for at least forty years. They are, however, capable of little mental improvement under education, although it makes them much less mischievous and troublesome. There seems to be no evidence that microcephalic children are ever really benefitted by any surgical operation undertaken to enlarge the capacity of their cranium.

CHRONIC HYDROCEPHALUS.—This is not a very uncommon cause of mental effect. Mentally, the effect is not very noticeable, and, in slight cases, the intellect may never be appreciably affected. Even in extreme cases the children show a surprising amount of intellect, considering the condition of their brains. In after-life, children who are imbecile through hydrocephalus are often capable of a considerable amount of education, and they are usually gentle and amiable in disposition.

CEREBRAL PARALYSES.—In any form of cerebral paralysis there may be some degree of mental impairment. It is most likely to be severe in those cases of diplegia in which meningeal hemorrhage at the time of birth has led to atrophic changes in a large area of the cortex on both sides of the brain. There may, however, be considerable mental defect in cases of even comparatively slight hemiplegia or paraplegia, and in those who are by no means idiotic or even imbecile there is often a certain degree of mental instability and emotional weakness or a tendency to epileptic fits. While the more advanced cases are hopeless idiots, many of the less severe ones are capable of much more education than their stiff limbs and defective speech would leave one to expect.

MONGOLIAN IDIOTS.—An interesting and distinctive class is formed by those children who are now universally known by the unfortunate name of "Mongolian" or "Kalmuc" imbeciles, who form 5 per cent. of all imbeciles. Their features are small, short and rounded; and generally, like the rest of the body, they are reddish in tint. The head also is short (brachycephalic) and rounded, and strikingly devoid of eminences. The eyes are often rather near one another, and, in most cases, the axes of the palpebral fissures are abnormally oblique. In a large proportion also there is a marked development of the so-called epicanthic fold of skin at the inner angle of the eye. The tongue almost always protrudes a little when the child is at rest, being apparently too large for the mouth. In older children the mucous membrane of the tongue is said to be always fissured more or less deeply, and the author has found this to be the case in all the children over four years that he has seen.

There is nearly always a tendency to suck the tongue. Snoring, deficient nose-breathing, and other symptoms of adenoids are often present. The hair is usually scanty and dry. In infancy the skin is generally very soft, although it becomes dry and harsh in later life.

The limbs are soft and small-boned, and they have unusually lax ligaments at all their joints, so that they can be readily hyperextended. The hands are most characteristic and markedly different from those of cretin babies. The wrist and the metacarpal portion of the hand are small, and the latter very soft, from the smallness of the bones and the yielding character of the ligaments. The fingers are usually thick for the size of the hand, but taper at the tip, and are not so square-pointed as those of cretins. The little finger is generally dwarfed and curved toward the ring finger.

The development is slow in many ways. Dentition sometimes begins at the usual time, but more frequently it is delayed. The first teeth appeared in several of the author's cases when the child was about fifteen months old. The muscular movements are slow of being acquired, thus the baby often does not hold up his head till the sixth or even the ninth month, or sit till the end of the first year. Walking is generally learned during the third year. The grasp is usually feeble. Speech is learned late and very slowly, and it is guttural and indistinct. The disposition is usually bright and lively, and the child is often quick at doing little things which are learned by imitation, although in other respects he is distinctly backward in his mental requirements. The body-growth is almost always backward, even from birth, so that at eight months the infant looks not more than six months old, and at eighteen months about a year. The general strength, also, is much below the average, so that acute diseases of all kinds are badly borne; digestion is often very feeble. Fits occasionally occur, although not so often as in most other forms of imbecility. The liability of these children to succumb to disease—especially to tuberculosis and broncho-pneumonia—is such that most of them die in infancy or early childhood.

In giving a prognosis as to the child's future capabilities, we have to remember that these children always improve up to a certain point when time is allowed for their retarded development, and sometimes make what for them may be considered fairly satisfactory progress under careful training. We can tell for certain, however, from their very earliest infancy that they will never be more than imbeciles of a somewhat low grade. But we can also predict that they will almost certainly be cleanly in their habits, amiable and affectionate in their dispositions, and capable, with care, of considerable improvement.

CRETINISM.—We have seen and heard so much about cretinism in recent years that the author believes it would be quite superfluous to waste time by giving any systematic description of the disease. He confines himself, therefore, to a few remarks on its diagnosis, mainly in early infancy. *Eclamptic imbecility* also receives attention. Regarding the thyroid treatment of cretinism, the author believes that its use from the earliest infancy may be expected to result in complete recovery, so far as bodily growth and deformity are concerned; the same cannot as yet be said with regard to the mental defect. The intellectual condition will be surely and steadily improved, but, so far, I believe, there has been no account published of any cretin who has quite reached normal intelligence.

Bernard: Hydronephrosis in Early Infancy, Due to Calculi. (*La Presse Médicale.* Vol. v. No. 91.)

The four reported cases were found at autopsy in infants dying of gastro-intestinal disease. In one, bacteria were found, but in the other three the only demonstrable cause of the condition was the presence of uric acid granules. These must have accumulated at some point, causing increased tension and finally dilatation, which is partial at first, but may go on to evolve the entire kidney. Clinically these cases give no symptoms, unless they have had time to develop a perceptible tumor. But if the infants live long enough, symptoms may develop from one of three causes: The conglomeration of the urates into a persistent calculus; the evolution of the anatomical changes here begun, and, finally, the torsion of the ureter secondary to its dilatation. At any rate, the uric acid hypothesis explains many obscure cases of hydronephrosis, and these cases are not as extremely rare, as has been supposed.

Tordeus: A Case of Intermittent Pneumonia. (*Journal de Clinique et de Thérap. Infantiles.* Vol. v., No. 32.)

The name applies to the type of the fever in certain cases of pneumonia due to the pneumococcus, and in no way dependent upon a malarial infection. The reported cases affected a well-nourished girl of six years, who developed a lobar pneumonia on the right side, the onset being very sudden and stormy, with a temperature 40.4° C. On the following day, the morning temperature was 38° C., evening 40.2° C.; the third day showed a morning drop to 37.4° C., an evening rise to 40.5° C.; on the fourth day the morning temperature was 36.9° C., and the evening 37° C., after which no further rise occurred. Recovery was rapid and complete. It is especially noted that the variations in the fever were not due to the administration of antipyretics, nor even of cold baths, so the treatment had been purely expectant, and the fever had not been treated at all.

Apert: Chronic Form of Werlhof's Disease; Cessation of Symptoms and Blood Lesions Eight Days After Beginning Treatment. (*Journal de Clin., et de Thérap. Infantiles,* Vol. v., No. 49.)

A boy fourteen years old, of negative family and personal history, presented himself for treatment of an epistaxis of six days' duration. About a year before tonsillotomy had been performed, and was followed by severe hemorrhage, necessitating eight days' rest in bed for a condition of extreme anæmia and weakness. Since that time there had been ecchymotic spots on various parts of the body.

The boy was in good general condition, and as a cause for the nasal hemorrhage, a small ulcer with a fungoid base was found in either nostril.

Examination of the clotted blood showed that it was abnormal in that the clot did not retract and there was no separation of serum in twenty-four hours. He was treated with chlorate of calcium, lemonade, and restricted exercise. In eight days there was marked improvement in the symptoms and blood lesions, while in two months and a half, cure was complete from every point of view.

Marfau: Tubercular Peritonitis in Children. (*Archives f. Kinderheilkunde.* B. xx. H. v., vi.)

The author believes that in cases of tubercular peritonitis, the sources of the infection are not the intestines, mesenteric glands, pleura and genital organs, as generally supposed.

The bacilli, through the means of the circulation, may be transported to any portion of the body, and for some unknown reason the peritoneum is involved, while the other structures go free.

Three varieties of tubercular peritonitis are described:

1. Ascites tuberculosus chronicus.
2. Peritonitis fibro-caseosa.
3. Peritonitis tuberculosa fibro-adhæsiva.

The tubercular ascitis is, according to the author's belief, the most frequent form. Many cases recover, others develop into the fibro-caseous form. Simple chronic peritonitis occurs rarely.

The peritonitis fibro-caseosa usually follows the tubercular ascitis. The ascitis diminishes and becomes encapsulated with the gradual formation of indevated masses. In certain cases the ascitis remains and puncture is required. In others the fluid subsides completely. Recovery rarely occurs in this form. An abscess usually develops and may rupture into the intestines or externally in the region of the umbilicus.

Sometimes the degenerated lymph glands form tumors of considerable size, producing intestinal obstruction, compression of the veins and stoppage of the bile ducts. The liver, spleen and intestines may undergo atrophy and lead to severe disturbances of nutrition.

The formation of fibrous tissue may lead to the third form. This form is very rarely seen in children. In this variety, the intestines may be so displaced by the fibrous bands that occlusion results. The medical treatment is largely symptomatic. Cod liver oil with creosote and its derivatives are advocated. Regarding surgical procedures, the author offers the following:

Tubercular peritonitis in many cases has a tendency to heal spontaneously. Laparotomy appears to increase the tendency by means of a process which we do not understand. Laparotomy is indicated:

1. In cases of peritonitis fibro-caseosa with ascitis.
2. Localized peritonitis with encapsulated fluid.
3. In cases of resulting intestinal obstruction. Operation is contra-indicated when there is general and extensive involvement of lungs, and intestines, with albuminuria.

In eighteen months the author observed nine cases. Two were only two days under observation. Of the remaining seven, five had plain tubercular ascitis. Of these, three recovered without puncture and without laparotomy. Two were improving at the time of writing. Of the remaining two, one had a periumbilical phegmon through which an internal abscess ruptured. The patient recovered. The other patient had the fibro-caseous form with ascitis. Measles and nephritis developed and the patient died.

Ritter: Observations in Pertussis. (*Archives für Kinderheilkunde.* B. xxi., H. v., vi. 1898.)

The report comprises observations made upon 1163 cases of pertussis covering a period of five years. Every phase of the disease was treated. The season of the year appeared to exert no influence on the spreading of the disease or the number of cases seen.

One hundred and twenty-two unprotected children, members of the families of those affected, did not take the disease. Five children developed the disease twice; the interval between the attacks is not given. The most susceptible children were those under two years of age. After the second year was past, the susceptibility diminished rapidly. Thirteen adults, all of whom came in intimate contact with their afflicted children, took the disease.

The opinion that delicate children are predisposed was not borne out by the author's experience. Bodily strength appeared to exert no influence as regards the susceptibility. The sputum of one hundred and forty-seven cases was examined for the diplococcus tussis convulsivæ, and was present in every case. The patients were examined in this way from ten to twenty times, each at intervals of three days. Over two thousand sputum examinations were made under treatment. Bromoform and quinine receive a first place.

West, Samuel: Broncho-Pneumonia. (*British Medical Journal.* 1898. No. 1952. *The Post Graduate.* Vol. xiii. No. 8.)

The author believes that under the one term "broncho-pneumonia," several different conditions are included, and that many of them are pneumococcus inflammation; in other words, that some of the broncho-pneumonias of children are really the same disease as the common pneumonia of the adult, or to put the proposition in another form, that the only difference between the pneumococcus inflammation of the adult and of the child is that in the one case the inflammatory consolidation which results is lobar or massive, and in the other lobular or patchy.

Speaking generally, broncho-pneumonia is shown to be associated with several varieties of pathogenic organisms; for example, the streptococcus, staphylococcus, Friedlaender's bacillus, the tubercle bacillus, and others; but chief among them all is the pneumococcus, which, taking all cases together, is present either alone or in association with some of the others named, at least 50 per cent. Thus Netter examined 42 cases, and found

Pneumococcus alone in . . .	10	19 = 45 per cent.	
With others in . . .	9		
Streptococcus alone in . . .	8	23 = 60 " "	
With others in . . .	15		
Staphylococcus alone in . . .	5	13	45 " "
With others in . . .	8		
Friedlaender's bacillus alone in . .	2	6	
With others in . . .	4		

Weichselbaum, in 15 cases, found the pneumococcus in 7, streptococcus in 6, Friedlaender's bacillus in 1, and streptococci and staphylococci in 1. Horton Smith, in 11 cases, found the pneumococcus alone in 5, with others in 3—that is, in 8 out of 11, and in only 3 cases was it absent. Mosny examined 4 cases of primary broncho-pneumonia and found the pneumococcus in 3 and the staphylococcus in 1. In 13 secondary cases the pneumococcus was present alone in 1, and associated with the streptococcus in 1. The streptococcus was found alone in 5, and associated with other bacilli in 5 more. Friedlaender's bacillus was present in 1, and an unknown bacillus also in 1.

As far as the evidence goes it seems to show that in secondary broncho-pneumonia the streptococcus is the most frequent organism, and in primary broncho-pneumonia the pneumococcus, and that among the latter the pneumococcus is almost as common as it is in lobar pneumonia of adults.

It is now well-known that the microscopical distinctions often drawn between the minute lesions of lobar and lobular pneumonia cannot be regarded as absolute, and that for example even the fibrin network, which is so common in lobar pneumonia is not uncommon in acute broncho-pneumonia, while it may be absent in lobar pneumonia.

The conclusions to which this evidence points are obviously these:

1. That the primary and secondary broncho-pneumonias have a different bacteriological origin.

2. That secondary broncho-pneumonia is for the most part due to streptococcus infection, derived from some source in connection with the air tubes, throat and mouth.

3. That primary broncho-pneumonia is of pneumococcal origin.

4. That pneumococcus inflammation occurs with almost equal frequency in the child and the adult.

5. That pneumococcal inflammation takes a different form in each—in the adult producing massive consolidation, and in the child disseminated patches of consolidation; in other words, that there are no real pathogenic distinctions between lobar pneumonia of the adult and primary lobular pneumonia of the child.

To sum up, the author is of the opinion that the term "broncho-pneumonia" would be best reserved for those inflammations of the lungs which follow antecedent affections of the bronchi, and that their exciting cause for the most part will be found to be other organisms than the pneumococcus; while, on the other hand, the primary broncho-pneumonia of children is really croupous pneumonia occurring in a disseminated and patchy form instead of a massive consolidation.

Wentworth, A. H.: Pneumococcus Meningitis. (*Boston Medical and Surgical Journal.* 1898. Vol. cxxxviii., Nos. 11-14.)

The writer has had the opportunity of observing but three cases of meningitis due to the pneumococcus lanceolatus. Two of these cases were secondary to lesions in the lungs and pleura, and the third was a case of primary pneumococcus meningitis. From such a limited number of cases it was impossible to deduce a clinical picture of the disease. It seemed fair to assume that in the secondary cases the clinical picture was modified by the original disease. In both of these cases cerebral symptoms did not appear until a day or two before death, and were quite insignificant at any time, considering the extent and character of the lesions in the meninges. The case of primary meningitis was observed from the beginning, but the patient presented so few of the typical symptoms of meningitis that a diagnosis was not made during life.

It is impossible in a single case to determine how much the clinical picture was modified by the infant's age. From the literature on the subject it would seem as if primary infection of the meninges by the pneumococcus lanceolatus was infrequent. It is more than probable that the older descriptions of epidemics of cerebro-spinal meningitis due to the pneumococcus are erroneous, and that the organism in these cases was the intracellular diplococcus, which was not recognized at that time.

Peterson, Frederick: Case of Amaurotic Family Idiocy with Autopsy. (*Journal of Nervous and Mental Diseases.* 1898. Vol. xxv., No. 7.)

The patient was first seen by the author when three months old and died at the age of seven months and twenty days. The following summary of the autopsy findings is made by the author: The brain shows, both macroscopically and microscopically, a condition of defective development, and this corroborates the findings in the several autopsies made in these cases. The pathological conditions are limited, as far as the fine structures are concerned, to the nerve cells of the cortex and medulla, which were found markedly deficient in number and in development in the occipital region about the calcarine fissure, in the temporo-sphenoidal lobes, in the frontal lobes, in the motor areas, in the corpora quadrigemina and geniculate bodies, and in the third and fourth cranial nuclei. *Post-mortem* changes did not affect the importance of these findings. As regards, however, the alteration of the chromatic substance of the cell, this must be referred largely to the general condition of the patient before death, and not to the disease under discussion. No definite changes in the fibres or imperfect developments of the tracts were discovered.

Syms, Langford: Gastric Attacks or Toxic Gastritis (Food Poisoning). (*Dublin Journal of Medical Science.* 1897. No. cccviii.)

The author begins with the question whether there actually is such a disorder as "gastric attacks." For many generations practitioners have sought refuge in this phrase. Experience, the author believes, shows that they were not wrong. Almost every practitioner sees cases of it which at first he cannot diagnosticate. Also it cannot be classified according to the routine diseases of adults. There are few more puzzling conditions in children. They are abdominal cases simulating organic cerebral mischief, or specific fevers. It occurs after errors in feeding. It is a chief cause of much of the haziness and uncertainty and obscurity of some men's knowledge of children's diseases. The child becoming suddenly alarming ill to-day, with perhaps, many symptoms of profound organic nervous or febrile disease, and quickly changing or recovering in forty-eight hours, remains almost an enigma to the physician. It is most erratic in its course and duration. The symptoms, to one physician, suggest acute dyspepsia, to another "gastric fever," to another dentition fever, while to a fourth it may be put down as an enteric, cerebral, or eruptive febrile disease.

Every time the stomach is overloaded with food, especially if indigestible and unsuitable, a speedy natural cure may take place by spontaneous vomiting or diarrhœa. When this does *not* take place the "gastric attack" develops into a "status gastricus sive saburralis," a condition of whose nature we know practically nothing in spite of its frequency.

What the actual condition is we do not know. Its causes are practically always dietetic. It should never be put down to "cold," for definite demonstrable dietetic causes are always found, and poisonous decompositions of indigestible food is its main origin. Dr. Soltau Fenwick has observed a lack of hydrochloric acid in the contents of the stomach, leading to micro-organic fermentation and formation of organic acids. Some elaborate investigators actually describe four or five varieties.

All that is necessary, however, is to distinctly recollect that it may occur with or without high fever, and may present almost any known symptom.

Selecting the most frequent signs we observe, perhaps, a full-grown child prostrated on its mother's lap by the following urgent and puzzling symptoms, which have suddenly come on: Headache, vomiting, confined bowels, collapse, drowsiness, apathy, and perhaps delirium.

The tongue is red and creamy, thickly coated with a yellow felt-like fur.

The abdomen is swollen and tender, with abdominal discomfort. Then high fever, anorexia, restlessness, or pain, offensive breath, great thirst, perhaps convulsions, or other reflex nervous symptoms combine to form the picture of what may only be a surfeit or gastritis from food poisoning, instead of some gross organic disease.

The most valuable guide is its sudden onset after food. The diagnosis is difficult. The conditions which confound us in these cases are: Tubercular meningitis in the comotose stage, but this will be known by ocular paralysis, true and deeper coma, tense bulging fontanelle, retraction or rigidity—all of which are absent in food poisoning.

Intussusception will produce similar symptoms, but search should be made for an obscure tumor in the abdomen, mucoid bloody stools, and the rectum should be examined.

Enteric fever is much more insidious, has less fever, enlarged spleen, less headache, is less sudden, and while lasting a long time, has a much milder train of symptoms.

Eruptive fevers (especially scarlatina) will develop their signs in forty-eight hours, while tonsillitis or diphtheria is excluded by a careful examination.

There is one comfort in any case—viz., the prompt use of an emetic. This is the first and best treatment for this condition, while if the diagnosis is mistaken it cannot have any ill effect in the early stages of meningitis or typhoid.

HYGIENE AND THERAPEUTICS.

Reyburn, Robert: Treatment of Some of the Diseases of Children Two Hundred Years Ago. (*The Medical Record.* 1898. Vol. liv., No. 13.)

The first authority quoted by the author is Dr. Thomas Willis, an eminent physician of England. He was born in 1621 and died in 1674. He wrote several medical works, one on the anatomy of the brain and one on convulsive diseases, including epilepsy and scurvy. From the latter, the following quotation concerning the treatment of epilepsy is given:

"A Man in this Neighborhood had all his Children dead of Convulsions, within three months after they were born. At length, to prevent the same Fate in a Son of his that was newborn, he thought proper to try the Power of Medicine. I was called to him a few days after the Birth, and ordered an Issue in the first Place to be made in his Neck, and that two Ounces of Blood should be drawn next Day at the Neck by the Application of Leeches. I advised besides, that for three Days before each Change of the Moon, and again before the Full, about five Grains of the following Powder should be given him Morning and Evening in a Spoonful of the Julap.

"Take prepared Human Skull, the Root of Male-Peony, of each one Drachm. Pearls in Powder, half a Drachm. Mix them all together, and make a very fine Powder.

"Take of Black Cherry-Water, three Ounces. The Antepileptic Water of Langius, an Ounce. Syrup of the Flowers of Male-Peony, six Drachms.

"I likewise ordered the Nurse to take a Draught of Whey, in which the Roots and Seeds of Male-Peony, and the Leaves of Lilly of the Valley had been boiled, twice every Day at the same Hours.

"The Child continued well about two Months, and then began to be troubled with Convulsive Disorders; upon which Account the same Medicines were again repeated in larger Doses, both to the Child and Nurse. Blisters were applied behind the Ears, and he was again bleeded at the Jugulars with Leeches. By these Means he got well again within two or three Days; and about four or five Months afterward, when the same Disorder returned, he was cured by using the above Medicines. After he was seven Years old, the Convulsions entirely left him;

but about the lower part of the Back Bone, an indolent Tumor arose. This Tumor occasioned a Distortion of the Vertebræ, which was succeeded by a Weakness of the Limbs, and at length a Palsey."

Extraordinary and even barbarous as the above treatment seems to us, yet in order to show that it was the usual treatment for epilepsy in that day a quotation is given from the book of Dr. Walter Harris on children's diseases, who was physician in ordinary to King William the Third of England. He was born in England in 1651 and died 1725. In his article on epilepsy in the above mentioned book he says:

"A girl eleven years old of a sanguine constitution, and troubled with very long and violent Epileptic Paroxysms, desired my advice the Eighteenth of December, 1701. For six months she had suffered two severe Paroxysms each day. The Paroxysm was in this manner: She fell first down as if dead upon the floor or bed; whence this disease is called the Falling Sickness: and after remaining motionless for a little while, she tossed her limbs here and there with great force and violence, attempting to beat herself with her hands. She frequently bended her head downward with strong Convulsions, and flung it backward with such force, as if she designed to dash the hind-part of her Skull to pieces."

After giving this vivid and accurate picture of epilepsy he says: "I prescribed for her the following powders: Take of prepared Earth Worms One Ounce. Human Skull prepared Two Scruples (forty grains). Mix them and divide into twelve powders, one to be taken twice a day in a spoonful of Cephalic Julap."

The next authority quoted is Dr. Richard Wiseman, who lived about two hundred years ago, and who was the physician to King Charles the Second of England. He wrote a number of treatises on various medical and surgical subjects, and from his treatise on the king's evil or scrofula, the following paragraph is taken. After prescribing various remedies he says:

"But where that does not agree we prescribe distilled milk of which this sort may serve as an example. Take of best Sarsaparilla one pound. Shavings of Hartshorn six ounces. Leaves of Agrimony and of both kinds of Fluelline, of each three handfulls. White and Red Saunders, of each two drachms. English Liquorice a pound. Garden Snails one hundred. Earth Worms one pound. New Cows Milk two gallons.

"Distill them according to art and to three pounds or pints of the distilled liquor add two ounces of prepared Crabs Eyes. Let him take of this to the quantity of four ounces at a time adding to each dose some quantity of Cinnamon Water."

Dr. Wiseman was also, it is said, a believer in the efficacy of the king's royal touch as a cure for scrofula, but he does not mention it among the remedies in the article we have quoted.

Returning to Dr. Harris' book on diseases of children, his treatment of fever is found to be as follows:

"To a child of a year old labouring under a fever or tormented with gripes I commonly prescribe in the following manner: Take Compound Powder of Crabs Claws, Prepared Pearls, of each one drachm (sixty grains). Mix them and make a powder to be divided into six equal parts. The child must take one of these immediately and let it be repeated (if the case require two hours thereafter and then every fourth hour)."

Dr. Harris could not have prescribed such remedies as these for any except rich patients, and we know now that crabs' eyes and prepared pearls are chemically nothing but carbonate of lime or chalk. The same quantity of prepared chalk given to the patient would have answered every medicinal purpose equally as well as these costly powders.

Thomas Sydenham, who was born in England in 1628 and died in 1689, was one of the most famous physicians of his time. Advocating as he did in the treatment of fevers and eruptive diseases, such as measles, small-pox, etc., of children, the use of cool air and other cooling methods of treatment, he was far ahead of his time. In his monograph on measles he gives a very good description of the disease, and a good deal of his treatment would be deemed judicious at the present day. However, toward the end of his article he says:

"If after the measles are gone off, a Fever, difficulty of breathing, and other symptoms that indicate a Periphneumony (Pneumonia) to succeed, a good quantity of blood must be taken from the Arm, and if there be occasion, the bleeding must be once or twice repeated at proper intervals."

He also says, farther on in the same article: "The Diarrhœa which comes after the Measles is cured by bleeding."

In his article on small-pox, he says: "If on the eleventh day of the Disease, or on any day following it, the Suppurative Fever comes on, and rises to such a height, with sickness, restlessness, etc., that it is not to be subdued by repeated Paregoricks, and the Patient seems to be in imminent danger. In such a case you may let blood (bleed) to a considerable quantity, and repeat the bleeding twice or thrice on following days, if there be a necessity for it, but not otherwise."

We can imagine the sensation that would be produced by any physician in our day attempting to bleed a child suffering from either measles or small-pox.

Dr. Burton, who was contemporary with Dr. Harris, wrote an interesting monograph on chin-cough, or whooping-cough, as it is called in our day. After giving a fair description of the disease, he says:

"When I am called, if the child be in danger of being convulsed, in the first place, in order to gain time I let some blood, which I would not otherwise do, because it is contrary to the second indication, and those children who were bled or much purged, were always longer in recovering, than those who had not been bled at all."

This last remark, by the way, seems to manifest that Dr. Burton had good powers of observation. He says:

"I ordered a Scruple (twenty grains) of Contharides (Spanish Flies) and as much Camphire (camphor) well rubbed together, to be mixed with three drachms of Extract of Bark (180 grains), of which composition I give the Children eight or nine grains every third or fourth hour in a spoonful of some simple Water or Julap, in which I had dissolved some balsam of capaivy."

The children of the people who lived two hundred years ago must have been under better discipline than ours of the present day, or they never could have been induced to swallow such nauseous medicines.

Jennings, Charles G.: Laryngeal Diphtheria Treated with Antitoxin and Intubation. (*The Medical Age.* 1898.)

The author reports 43 cases treated in one year. Of these 6 died, 37 recovered. Number of cases treated by antitoxin, without operation, 8, all of which recovered. Number of cases operated upon, 35, with 29 recoveries and 6 deaths. The 6 fatal cases are analyzed in detail. From this analysis it would appear that but two were treated sufficiently early to justify their inclusion in an estimate on the value of antitoxin.

Hesitation in the use of antitoxin by the attending physicians, the author attributes to two reasons: (1) uncertainty in diagnosis, and (2) fear of untoward action of the remedy.

The diagnosis of laryngeal obstruction caused by membranous laryngitis is usually correctly made; the question of doubt appears to be whether or not the disease is diphtheria. The old chimera, *membranous croup*, is hard to down. The clear-cut pathological fact that primary membranous laryngitis is almost without exception Klebs-Löeffler infection finds a tardy acceptance in most medical minds. That the streptococcus or other organism may, and occasionally does, excite laryngeal pseudomembranous inflammation is true; still, it is exceptional, and, so far as the immediate treatment of the case is concerned, of no importance. In cases of doubt the rule of action should be, *give the antitoxin and settle the question of diagnosis afterwards.*

The extensive use of antitoxin and the rarity of accident attributable to it are rapidly overcoming the fear of the remedy that was aroused by a few unfortunate cases early in the history of serum therapeutics, and which has been fostered by the virulent opposition of a few irresponsible editors. But one of the author's cases showed any toxic effect; this was an erythema and mild febrile disturbance lasting about a week. Except in two cases, Parke, Davis & Co.'s antitoxin was used.

Although the author has not used the very large doses recommended by some, he urges strongly the administration of the maximum dose at the beginning, believing that a full dose early will save many cases from operation. The report shows the infrequency and the mildness of the complications and sequelæ in croup cases treated with antitoxin. In one case only out of the series did the serum fail immediately to arrest the extension of membrane. Convalescence was rapid and perfect. The tube could usually be removed at the end of the fourth day; before antitoxin it was necessary to keep it in for six or seven days.

Laryngeal invasion most frequently characterizes diphtheria of a mild type, and particularly in cases in which the exudate is confined to the pharynx. Early injection of antitoxin checks extension to the larynx. To prevent and arrest laryngeal diphtheria the rules of action should be: Administer antitoxin at the earliest possible moment to every case of diphtheria, however mild. Immediately on the appearance of hoarseness and aphonia, the indications of laryngeal invasion, push the drug to the maximum limit.

In conclusion, the author expresses the belief that in intubation we have a very valuable operation for the relief of laryngeal obstruction. It has many advantages over tracheotomy, and is often feasible when tracheotomy is impracticable. In his opinion it is the preferable operation in all cases of obstruction, at least in the first instance. It stands in much the same relationship to tracheotomy that catheterisation does to tapping the bladder. The more severe operation should not be practised until the lesser has been attempted and found insufficient or impossible.

Millard, Killick: Intubation of the Larynx. (*Edinburgh Medical Journal.* 1898. Vol. lxv., No. 516.)

After an extended and very interesting paper upon this subject, the author enumerates the following advantages:

1. The operation is simple, once the knack of performing it is acquired.
2. It requires none of the ordinary essentials for an operation, much less the many special requirements essential for tracheotomy.
3. It is much more rapidly performed, requiring practically no preparation, whilst the actual operation should only occupy from fifteen to twenty seconds. It is, therefore, *the* operation for an emergency.
4. It does not require an anæsthetic. A very great advantage.
5. It requires much less assistance, two or even one intelligent woman being all that is necessary.
6. It does not require a good light. It can be performed almost as well in the dark.
7. As an operation, it is attended with much fewer risks than tracheotomy. Secondary pneumonia is comparatively rare.
8. Less after-treatment is required.
9. Though unable to talk whilst the tube remains in, the patient can readily make himself understood in whispers.
10. There is no wound to heal up after removal of the tube. Convalescence is, therefore, more rapid.
11. There is no disfiguring cicatrix, nor fear of subsequent stricture of larynx.
12. There being no cutting and subsequent hæmorrhage, little difficulty is experienced in obtaining the consent of the friends.

Its disadvantages are:

1. Some difficulty in performing the operation until the requis-

ite knack of doing it is acquired. This is probably one reason why the operation has not come more rapidly into use. The novice not infrequently fails to get the tube into position.

2. The possibility of pushing back of false membrane as the the tube enters the larynx. This is an accident, however, which only rarely occurs.

3. The possibility of the tube becoming blocked whilst *in situ*, necessitating immediate detubation. This, also, is of very rare occurrence, as usually, if the tube does become blocked, it is coughed out. Provision against this accident can be made by instructing the nurse, if an intelligent woman, how to detubate in an emergency by the method of expression.

Wolfe, Samuel: The Treatment of Anæmia in Children. (*Southern Medical Journal.* 1898. No. 8.)

The author reports a series of nine cases of anæmia occurring in children, ages ranging from six months to twelve years. Several of these are reported in detail. A girl of four, for two successive summers had frequent malarial attacks of an irregular character, resulting in anæmia and debility. She had been treated with arsenic, quinine, various preparations of iron, and, though responding to the drugs, was still inclined to fall always a ready victim to fresh onsets of the disease. On peptomangan she made rapid progress, and is now in good health. A girl of seven, who had for a long time been pale, contracted diphtheria. After recovery from the disease, the anæmia was still more grave. She was put on peptomangan, and soon regained full strength and color. Another girl of the same age, also habitually pallid, had wryneck for two weeks, which disappeared under iodide of potassium, but the anæmia had increased. Her restoration in color and to robust health was secured by the use of the same preparation for a month. A boy of four had measles, from which he made a good recovery. Two months later he was very anæmic and listless, with poor appetite and slight feverishness. He at once improved on the peptomangan, and continued until fully restored.

The author regards this as a particularly valuable preparation of iron, on account of its liquid form, pleasant taste, and non-corrosive action on the teeth. These qualities, together with the fact that the dose is easily graded, renders it of particular value to children.

Heath: The Municipal Control of the Milk Supply. (Transactions, Medical Society of the State of New York. *Buffalo Medical Journal.* Vol. xxxvii., No. 12.)

In discussing this subject, the author believes that the following conditions should be enforced:

1. All milk houses should be of sufficient and proper size, and should have light and ventilation, complying with the rules of hygiene pertaining thereto.

2. They should be constructed of such material as to be sanitary and as much as possible of non-absorbent material, or so made as to prevent frequent and effectual flushing and cleansing.

3. Communication by doors or other openings, with water-closets, sleeping apartments, or other rooms liable to become a source of offense, should be strictly prohibited, nor should milk-rooms be used for any other purpose whatever than the storage of milk.

4. Storage and cooling boxes should be substantially constructed, lined with metal, elevated well above the floors and away from surrounding wells, to permit thorough cleaning. They should be ventilated into the outer air and properly drained, but no drainage from them should directly communicate with the drainage or plumbing.

5. All plumbing should be strictly sanitary.

6. Rules with specific detailed directions for periodical cleaning of milk-house, storage boxes, cans, bottles, utensils, and information regarding the care of milk and possible source of contamination should be adopted and conspicuously posted in the milk-room.

7. Cans should be only of such depth and such construction as to permit ready and perfect cleaning; and it should be obligatory that they be cleansed before being returned to the dairy.

8. It should be obligatory that each can be tagged at its source, stating the character of the milk, its source, specific gravity as determined at the dairy, with the date and hour of shipment.

9. Milk-rooms should be permitted in cellars only under exceptional circumstances, and then should comply with every requirement of modern hygiene.

10. No milk-house or milk-room should be under the same roof or in connection with any horse or cow stable, nor should it be connected with any unsanitary buildings or surroundings.

11. Construction, equipment, care and management should be such as to obviate the use or disinfectants, and their presence or use should be prohibited. Any odor or evidence of them about a milk-house should be construed as evidence of defective sanitation.

12. During the summer months no milk should be used when over twenty-four hours old, and during the winter the age of the milk should not exceed thirty-six hours.

13. Milk on the wagon should be thoroughly protected from the weather, and especially during the summer months, by being properly iced, and should be delivered within certain prescribed hours.

14. No milkman should deliver bottles containing milk, nor leave any receptacle of his own containing milk, at any house placarded as containing a contagious disease; nor should he receive any empty bottles or receptacles from such house, or be permitted under any circumstances to fill or refill any bottle while on the wagon.

15. A record of all cases of acute contagious diseases occurring upon the route or in the service of each milkman should be kept. Daily reference and scrutiny of the same should be made, and upon suspicion of relationship of such contagious disease to any one source of the milk-supply, or any one milk route, immediate investigation and action should follow.

16. The dealing in milk in small quantities by small shopkeepers, such as grocers, confectioners and others, should be abolished.

Lewers, Alexander: Treatment of the Summer Diarrhœa of Infants. (*Intercolonial Medical Journal of Australasia.* 1898. No. 4. *American Jour. of the Med. Sciences.* Vol. cxvi. No. 3.)

The author believes that it is more rational to say that milk should be stopped because, under existing conditions, it has no chance of being digested than because it is a poison. As for irrigation, it probably has the same action internally as externally, *viz:* simulant and sedative, the tone of the intestinal wall being improved and peristalsis lessened. As for routine treatment, if vomiting is not prominent, either castor-oil or calomel to clear the intestine, and then bismuth to soothe it. If vomiting is severe, small doses of calomel and Dover's powder, or stomach lavage, followed by bismuth, are still the most satisfactory. Astringents and antiseptics are useless, and there is no golden rule of diet, except to stop the milk.

Morse, John Lovett: Gaertner Mother Milk. (*Boston Medical and Surgical Journal.* 1898. Vol. cxxxviii. No. 25.)

After describing the manufacture of this milk, the author reports numerous chemical analyses of it, and concludes that it contains only the constituents of cow's milk. These constituents are present in approximately the same proportions as in human milk. The proportions, however, are not constant and are unknown to the consumer. These proportions are insusceptible of modification. It is not a fresh food. It costs as much or more than modified milk which is freshly prepared and whose proportions can be varied.

SURGERY.

Krasnobaüff: Sarcoma of the Liver in a Child of Nineteen Months. (*Internat. de Méd. et de Chirurgie.* Vol. viii. No. 15.)

The little patient first came under observation for a rather severe diarrhœa, and a tumor in the right hypochondrium was discovered. This grew large rapidly, while the general condition became worse and worse. The liver extended down to the umbilicus; the growth was fluctuating, not very painful, and covered by œdematous skin. There was no ascites, but some œdema of the feet. A diagnosis of subphrenic abscess having been made, operation was performed. It was then found that the right lobe of the liver contained a cavity surrounded by adhesions, the contents being half an ounce of pus. Death followed in four hours, and the autopsy revealed a large, gray, softening growth in the right lobe of the liver, a smaller one in the left lobe, and softening of the lymph nodes in the hilum; also degeneration of the other abdominal lymph nodes, and a metastatic nodule in the spleen. Microscopic examination showed the tumor to be a large, round-celled sarcoma in a state of softening.

Froelich: Contribution to the Study of Umbilical Fungosities in the Newly-Born. (*La Presse Medicale.* Vol. v., No. 97.)

While these fungoid growths of the umbilicus have hitherto been described as of two varieties, granulomata and adenomata, the writer reports a case which necessitates a subdivision of the latter class into intestinal adenomata, originating from the omphalo-mesenteric canal, and urinary adenomata, originating from the urachus. The growth in the described case was as large as a pea and occurred in a three months' old baby. It had a depression on its summit which led into a diverticulum two centimetres in length, and on microscopical examination it proved to be made of stratified pavement epithelium, loosely arranged muscle fibres and some blood vessels. Its origin was undoubtedly a persistent urachus.

Carwardine, Thos.: Volvulus of Meckel's Diverticulum. (*British Medical Journal,* 1898, *Matthew's Quarterly Journal,* 1898. Vol. v., No. 18.)

L. P., aged two days, was brought to the Bristol Royal Infirmary on account of intestinal obstruction. The child had been repeatedly sick, bringing up a greenish-brown vomit, and had passed nothing *per anum,* nor discharge from umbilicus. The abdomen was much distended, and exploration of the rectum with the finger revealed no cause. The child was watched and treated for six hours, but nothing passed.

The distension appeared more on the left side, and accordingly celiotomy was performed in the left semilunar line. Here the small intestine presented, very much distended, with lymph upon its surface from peritonitis. The colon, when brought to the surface, was very small, not larger than a crow quill, whitish, empty, and non-sacculated. With the finger in the abdomen a mass could be felt to the right of the umbilicus. A second incision was therefore made in the right semilunar line, when much distended gut presented, which it was impossible to bring out of the opening, owing to numerous adhesions; and for the same reason the source of obstruction could not be felt, although it seemed almost certain that it was due to an anomaly of Meckel's diverticulum. On making an artificial anus, several ounces of meconium escaped. The cecum and ascending colon were small, white, and empty. The symptoms persisted, and the child died twenty-four hours later. At the *post-mortem* examination it was found that a meconium-containing cyst had been opened, produced by a volvulus of Meckel's diverticulum of some three turns. Only a fine impervious cord connected it with the bowel below it, and a minute stalk, which would partially admit a bristle, attached it to the distended bowel above.

The points of interest to which attention should be drawn were:

1. The *ante-partum* commencement of peritonitis, as shown by the lymph and adhesions of firm character to parts around.
2. The occurrence of the volvulus of Meckel's diverticulum *in utero*, during late fetal life, so that a meconium-containing cyst was segmented off from the meconium-containing ileum, and therefore obstruction was not relieved by opening the distended diverticulum.
3. The lower twelve inches of small intestine were empty and tortuous, and the colon small and non-sacculated. No meconium had ever passed into them, yet the cecum and appendix were well formed. This disposes of a common view as to the development of the cecum.

Diphtheria in Nursing Children, and Antitoxin.—Gustav Riether, in the *Wiener Medicinische Wochenschrift*, 1897, No. 28, writes that formerly in the Vienna Foundlings' Home true diphtheria occurred not infrequently in nursing babies, chiefly as nasal diphtheria. By means of protective immunization diphtheria has disappeared from the institution. About one hundred immunizing units of the antitoxin were employed without danger in infants only a few days or weeks old. Under these circumstances the immunity lasted five or six weeks.—*Medicine*.

American Pediatric Society

ELEVENTH ANNUAL MEETING.

Deer Park, — June, 1899.

OFFICERS—1899.

President, - - - - - Dr. W. P. Northrup.
First Vice-President, - - - Dr. Geo. N. Acker.
Second Vice-President, - - - Dr. Irving M. Snow.
Secretary, - - - - - Dr. Samuel S. Adams.
Treasurer, - - - - - Dr. E. M. Buckingham.
Recorder and Editor, - - - Dr. Floyd M. Crandall.

COUNCIL.

T. M. Rotch, *Chairman.*

J. P. Crozer Griffith,
B. K. Rachford,
A. D. Blackader,
Wm. Osler,
C. P. Putnam,
F. Forchheimer.

Delegate to the Congress of American Physicians and Surgeons.
Dr. A. Jacobi.

Alternate, - - - - Dr. A. Caillé.

The eleventh annual meeting will be held at the Deer Park Hotel, Maryland, in June, 1899. A full program is greatly to be desired. It is hoped, therefore, that the members will decide upon the subjects for their papers early that an early preliminary program may be issued.

ARCHIVES OF PEDIATRICS.

VOL. XV.] DECEMBER, 1898. [NO. 12.

Original Communications.

MELANOSIS LENTICULARIS PROGRESSIVA.*

BY T. M. ROTCH, M.D.,

Professor of Diseases of Children, Harvard University.

During my service at the Children's Hospital in January, 1898, two children came under my observation who were under the care of my colleague, Dr. H. L. Burrill, to whom I am indebted for the privilege of reporting them.

The disease has been called by a number of names by various authors. Thus Kaposi speaks of it as xeroderma pigmentosum. Vidal calls it dermatosis Kaposi. Neisser calls it liodermia cum melanosi et telangiectasia. Taylor calls it angioma pigmentosum et atrophicum, while Pick and White speak of it by the name of melanosis lenticularis progressiva, which has now been quite generally adopted.

I shall not attempt to describe in detail a disease which especially belongs to the province of the dermatologist, but shall only say that it is exceedingly rare since, when it was first described by Kaposi in 1870, only about seventy-five cases have ever been recorded up to 1897. Nearly all the cases began in the first or second year, and one has been reported as occurring at five months. The predominance of the lesions is in the exposed parts of the body and the lesions consist of freckle-like spots of pigment, followed by atrophic degeneration of the skin and telangiectases. These are the primary lesions and may be followed later by more serious lesions of the skin, such verrucous growths starting usually in the pigmented spots and, according to Hyde, of either an epithelomatous, sarcomatous, or angiomatus character. The lesions may be single or many; may be confined to the skin or develop in the viscera, and usually lead to fatal results in a few or many years.

---

*Read before the American Pediatric Society, Cincinnati, June 2, 1898.

The etiology of the disease is exceedingly obscure, but it seems to have a congenital predisposition, as shown by the occurrence of several cases in one family. Most of the cases have been females.

According to Dr. J. C. White, of Boston, none of the cases which have been observed in this country have occurred in native American stock, if such a type exists.

I present photographs of the two cases which I have just referred to. They are sisters and are of healthy parentage. The child on the left side of the picture is seven years old. When she was three months old small freckles appeared on her face and arms, growing larger, and becoming soft and fleshy in some places and in others horny. The lesions have especially affected her face and hands. She has been operated on eight times by curetting and skin-grafting, but the lesions have recurred in the scars.

A physical examination shows a fairly developed and nourished child with dark red hair. Scalp clean and clear. The disease is present on the face, neck, extensor surfaces of the arms and legs, in the clavicular region, and above the spines of the scapulæ. The lesions consist of brownish maculæ varying in size from a pin head to a split pea and are not elevated. There are numerous white horny growths, some with broad and some with constricted bases. On the face are several soft fleshy masses the size of a large pea, red and bleeding easily. Some of them are covered with a thick black crust. Between the various lesions the skin is atrophied in places, notably on the face and wrists. There is ectropion of both lower lids and there are no eyelashes. On the thighs and lower legs there are some very faint maculæ but no soft or horny growths. Nothing else abnormal is detected. The urine is normal. The blood shows

Leucocytes,	6,600
Erythrocytes,	4,400,000

A differential count shows

Neutrophiles,	72	per cent.
Small Mononuclears,	16	"
Large "	9	"
Eosinophiles,	3	"

The child has been treated with the mixed toxins of streptococcus erysipelatis and bacillus prodigiosus, one-fourth of a

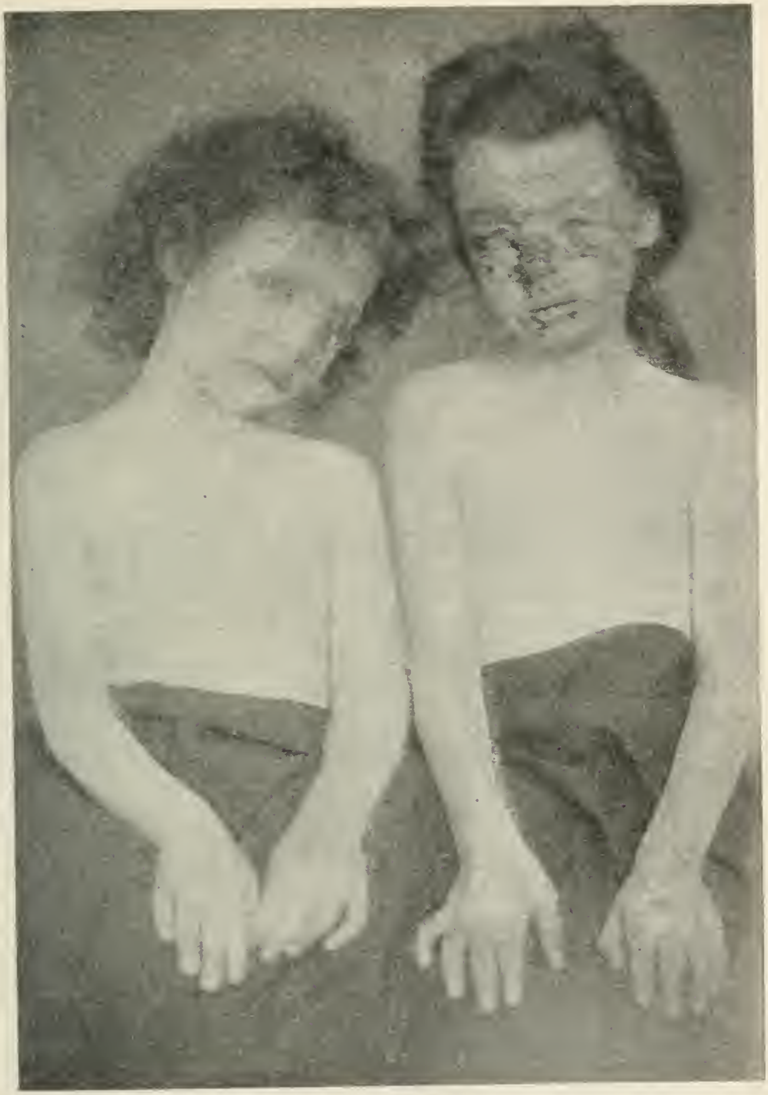


Fig. 1. MELANOSIS LENTICULARIS PROGRESSIVA OCCURRING IN SISTERS.
(CASES I. AND II.)

drop being given subcutaneously and increased daily. When one drop was reached a reaction took place, the temperature rose to 102° F. with headache, vomiting and photophobia. The dose was then increased by one drop nearly every day until thirteen drops were reached. The condition steadily improved. The soft growths became smaller and less moist. The crusts fell off and several warty growths disappeared from the face, neck and backs of the hands. When the treatment was omitted two days a very rapid relapse took place and new soft and horny lesions appeared. The softer ones grew larger and bled very easily; large black crusts formed and the skin between the lesions became red. On resuming the treatment improvement was noted in twenty-four hours. No especial effect was noticed where the injections were given in the forearms. When the child was exposed to sunshine the lesions became much worse, and when, after a week's exposure, it was returned to a darkened room, improvement was noticed at once not to be ascribed to toxins. The dose was gradually increased to eighteen drops, but the child appeared to become habituated to the toxin and it became harder and harder to get a reaction and to control the lesions, an omission of one day in the treatment causing a marked relapse. The general condition and health of child seemed to be very little impaired by the disease.

Various other forms of treatment were tried without effect, such as the application of copper sulphate, silver nitrate, ithyol, salicylic acid and various ointments.

The other sister, seen on the right of the picture, is six years old. The lesions appeared when she was five months old. Her general health is good. She has had five operations, curetting, grafting and plastic.

Physical examination shows the hair to be red, and the description of the lesions is the same as in her sister. She has ectropion of both eyes, and one large, soft, reddish growth at the outer canthus of each eye. On her hands and face are a few small white horny growths, and there are many small faintly red maculæ on her face, neck and extremities. She seems to be in an earlier stage of the disease than is her sister.

Judging from the experience of those who have treated this disease, Dr. Burrill decided to have this child placed in a large box and to have the light admitted through panes of glass of various colors, red and green. The child was exposed to the red rays from January 24th to March 4th. During this time the fleshy masses at the corner of the eyes became much smaller and dried up to a thin white crust, but no general improvement was noticed. From March 4th to April 5th green glass was substituted for the red, and no improvement was noticed. On

April 6th the combined toxins were again begun with no good results.

An official report by Dr. F. B. Mallory on a specimen of tissue from one of the facial tumors showed typical epidermoid cancer.

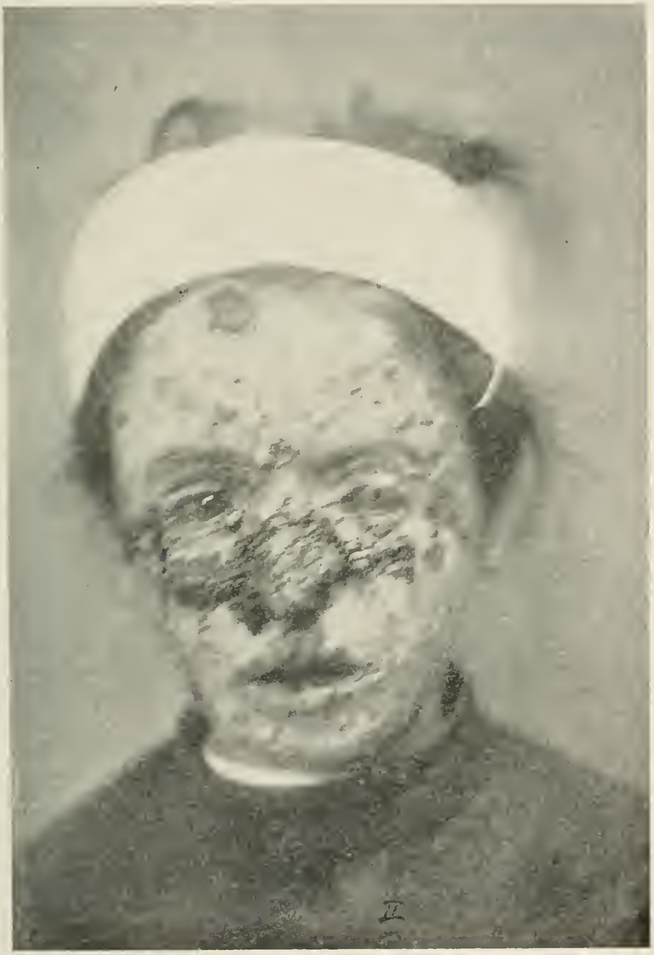


Fig. 2. MELANOSIS LENTICULARIS PROGRESSIVA.
(CASE I.)

In this case the toxin caused repeatedly attacks of redness, pain and swelling on the surfaces of the joints, and was finally omitted.

The result of the treatment of these cases shows that it was of no permanent benefit, and, in fact, there is no known curative treatment for the disease. According to Hyde, most of the patients succumb to marasmus in from ten to twenty years.

In connection with these cases, Prof. James C. White, of Harvard, has sent me a report of a case which has been under his care, and which he has reported at length in the *Journal of Cutaneous and Venereal Diseases,* Vol. iii., December, 1885.

The case illustrates the essential and primary lesions of the disease melanosis lenticularis progressiva, namely, the pigmented appearance of the skin (melanosis), the atrophy or leucodermic condition, and the telangiectasis.

The case is interesting as one of the few which have reached adult life, the reason appearing to be that only the primary and benignant lesions of the disease developed in this case, and that the later lesions and verrucous growths which I have just spoken of did not occur. Where these later lesions do occur, especially if early in life, the disease is, as a rule, fatal.

197 COMMONWEALTH AVENUE.

Diphtheria Antitoxin Administered Per Orem.—Dr. John Zahorsky draws the following conclusions in a paper in the *New York Medical Journal:* "Diphtheria antitoxin acts similarly whether given by the mouth or subcutaneously, but its effect occurs much later when given in the former way. It is possible that the intestinal epithelium refuses at certain times to take it up, and, therefore, it is a less reliable method. This mode should be employed in mild cases when objections stand in the way of its use. Its use by the mouth as a prophylactic measure is to be recommended, as it presents many advantages. However, if the child has been exposed as long as two days, the hypodermic method should be employed. Joint pains, erythema, urticaria, and dysmenorrhea are not prevented. From a clinical standpoint, therefore, it is to be urged that for curative purposes the administration by the mouth should be restricted to exceptional cases; but for prophylactic purposes this method should receive the preference."

SARCOMA OF THE KIDNEY IN AN INFANT NINE MONTHS OLD.*

BY FRANK SPOONER CHURCHILL, M.D.,

Associate in Diseases of Children, Rush Medical College, in Affiliation with the University of Chicago; Professor of Pediatrics, Chicago Polyclinic.

I have to report the following interesting case: Otto W., male; nine months old, was brought to me at the Chicago Polyclinic, March 28, 1898, with the following history:

FAMILY HISTORY.—Paternal grandfather died from alcoholic excesses, whether from cardiac, hepatic, or renal trouble I could not learn. Father is a hard drinker; mother has drunk daily since birth, two glasses of beer, "to make milk for the baby."

PREVIOUS HISTORY.—Baby was breast-fed exclusively till three months; since then breast, cow's milk more or less diluted, bread, potato. Apparently well up to third month, when the present trouble began.

PRESENT ILLNESS.—About the third month of life, the mother noticed that the abdomen, on the left side, was beginning to swell, the increase in size being constant since then, and especially rapid the last few weeks; loss of flesh, nurses and eats but little; some vomiting, constipation, fretful, sleeps poorly.

PHYSICAL EXAMINATION.—Marked pallor and emaciation; weight, sixteen pounds five ounces; skin dry and harsh; distension of superficial veins of abdominal wall.

Chest.—Few coarse moist râles here and there; otherwise negative.

Abdomen.—Marked distension and prominence of whole of left side of abdomen extending from left hypochandiac region diagonally down and to the right iliac region. Palpation over this swelling shows mass of comparatively regular outline, firm and hard, yet in places giving a sense of fluctuation, apparently tender to the touch, flat on percussion, not moving with respiration. No notch detected; no increase upward in area of splenic dulness; no increase in area of hepatic dulness.

Slight enlargement of glands in left inguinal region.

The blood and urine, examined two days later, showed following conditions: BLOOD.—Red, 3,104,000; white, 11,104; hæmoglobin, 25 per cent.; no plasmodium detected.

---

* Read before the American Pediatric Society, Cincinnati, June 2, 1898.

Urine (caught by mother in cup).—Smoky; much albumin (percentage not estimated); not enough for specific gravity.

Sediment.—One or two normal renal cells, considerable normal blood; many cells, large round and small round showing fatty degeneration. One or two compound granule cells; one quite extensive patch of round-celled epithelium (renal?); few leucocytes. One or two casts of urates, one or two fine granular casts of narrow diameter. Considerable fibrous débris.

Diagnosis.—Sarcoma of left kidney.

While the position of the tumor of course suggested the possibility of its being splenic, the blood count, showing only 11,000 white corpuscles, ruled out all affections in which we might have had an enormously enlarged spleen with the history given. The tumor was evidently renal, and the age, history, and general condition all pointed to sarcoma. The examination of the urine showed apparently, extensive involvement of the kidney tissue itself. Among the round cells seen in the urinary sediment were some which did not have the exact appearance of renal epithelium, and I was inclined, somewhat rashly perhaps, to think that we had to do with a round-celled sarcoma, undergoing fatty degeneration, a clinical theory which subsequent pathological examination failed to confirm.

Prognosis.—The prognosis was of course absolutely unfavorable, with or without operation. Dr. M. L. Harris, who kindly saw the case with me, advised against operation, but yielding to the urgent solicitation of the parents who were evidently anxious to cut short the child's misery, finally operated.

I quote from his detailed account of the operation:

"An incision below the twelfth rib extended transversely from a little to the left of the spinous processes to the linea semi-lunaris, and from thence upwards and downwards about 10 cms. The peritoneal cavity was opened. The descending colon had been carried anteriorly and towards the mid line and crossed the anterior surface of the tumor from above downwards. The tumor filled the concavity of the diaphragm above, extended to the pelvis below and considerably to the right of the mid line.

"The descending colon with its meso-colon were deflected inwards and the tumor enucleated.

"The spermatic and peri-renal veins were very much enlarged and had to be clamped at the lower pole of the tumor.

The renal vein with its branches spread out over the anterior surface of the tumor, the renal vessels were clamped and the tumor removed, and all hemorrhage effectually controlled. The immense wound was closed without drainage. Much to the surprise of every one the child stood the operation, which lasted about thirty minutes, remarkably well. The apparently good condition, however, did not last; death occurring a few hours later.

"The right kidney was not diseased; no metastatic growths were detected in the abnormal cavity."

Appended is the pathological report of the tumor carefully prepared for me by Dr. Maximilian Herzog, Professor of Pathology at Chicago Polyclinic:

"The tumor after removal weighed over three pounds; it is egg-shape in general outlines with diameters of 15½, 10½ cms., and possesses a fibrous capsule. On one side of the largest equator of the new growth there is situated what is left of the kidney, a flat mass more or less circular in outline, about 5 cms. in diameter and only a few mm. thick. When the tumor is laid open in its largest medium plane, it is seen to be divided into numerous compartments or cystic spaces—honeycombed.

"The compartments appear to contain blood, colloid and myxoid material. In the central axis of the tumor there runs a mass of tissue, several cms. long and about 1 cm. thick. This tissue macroscopically looks as if composed of striated muscle fibres. This impression, however, is erroneous as shown later by the microscopic examination.

"The whole neoplasm was fixed and hardened in Mueller's fluid (10 pts.) and Formalin (1 pt.), pieces from several places were subsequently dehydrated, embedded in paraffin, etc."

THE MICROSCOPIC EXAMINATION shows that the tumor is made up of a variety of heterogeneous elements; in some places where the neoplasm appears most dense the tissue is formed of densely packed spindle cells of a small type, with comparatively large spindle shaped or elongated oval nuclei, rich in chromatin of a very finely granular uniform type. These spindle cells surround small irregular blood-clefts or spaces. The latter have no walls proper, their boundaries being directly formed by the tumor cells. In other places we find the same type of small spindle cells not so densely packed, surrounding distinct vessels

(Fig. 1). Here it is evident that the tumor cells have been formed by a proliferation of the cells of the blood-vessel wall. Again in other places we find thin but distinctly walled blood-vessels surrounded by small round cells (Fig. 2). These round cells possess spherical vesicular nuclei fairly rich in chromatin of a coarse granular type and a very scanty amount of cell protoplasm. Free blood is found between the round cells just described.

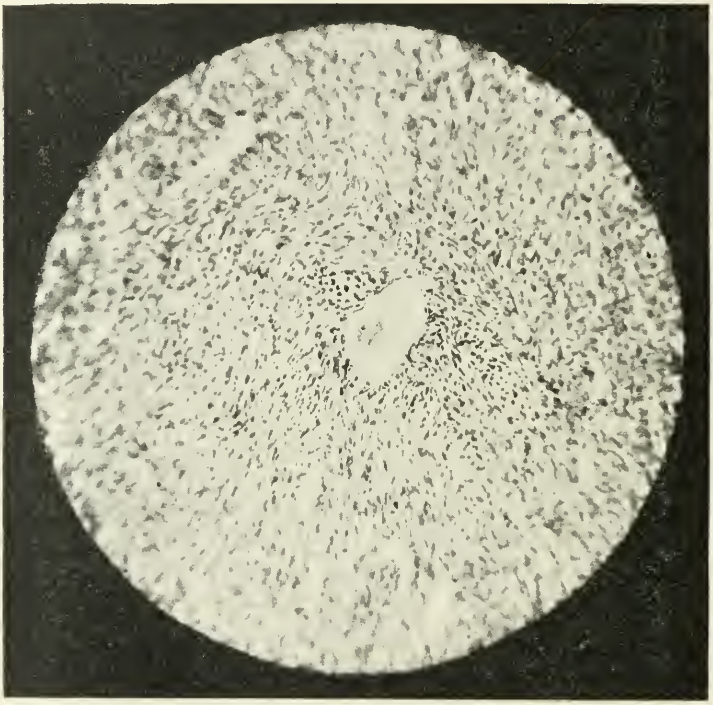


Fig. 1. MICROSCOPICAL SECTION OF KIDNEY TUMOR SHOWING TISSUE FORMED OF CLOSELY PACKED SMALL SPINDLE CELLS, SURROUNDING DISTINCT VESSELS.

The honey-combed spaces contain, as appeared on macroscopic inspection pseudo-mucinous and colloid material. Some of the cystic spaces represent large venous sinuses filled with blood.

What is left of the parenchyma of the kidney shows the evidences of very advanced atrophic processes, the uriniferous tubules being very small, collapsed, or compressed, and the glomeruli small. Hyaline material is found in very few places, only in small blood-vessels and tubules. But outside of this there are found no evidences of degenerative processes of the renal parenchyma either in tubular epithelium or the glomerular capillaries. The only interstitial change found in that part of the kidney appearing as such on naked eye examination, is thickening of the capsule overlying the thin atrophic renal parenchyma.

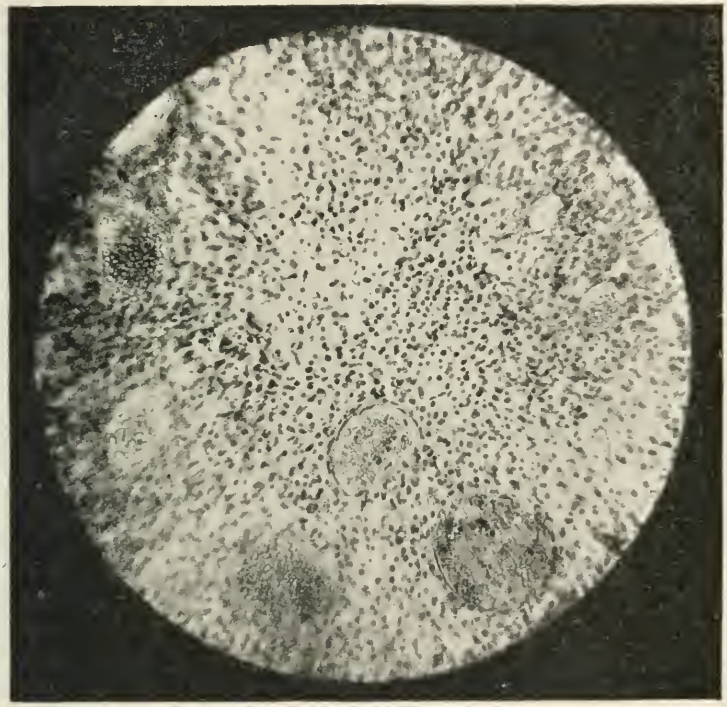


Fig. 2. MICROSCOPICAL SECTION OF KIDNEY TUMOR SHOWING THIN BUT DISTINCTLY WALLED BLOOD-VESSELS SURROUNDED BY SMALL ROUND CELLS.

Remnants of the organ were recognized on macroscopic inspection, while microscopic examination showed parts of the parenchyma in several places in the capsule of the tumor.

The central mass, which looked as if composed of muscle fibres, showed a very small number of nucleated round and spindle cells. The great majority of the cells found in this tissue have completely degenerated, their nuclei have disappeared and their cell protoplasm is granular and cloudy. The cell boundaries are frequently indistinct. These degenerated cells are imbedded in a stroma of a fibrinous material, the fibres of which are arranged in more or less distinctly parallel bundles and groups. To this arrangement is due the naked eye impression that this tissue contained striated muscle cells.

What appeared macroscopically as the capsule of the tumor is shown to be made up externally of perfectly hyaline non-nucleated fibres. Internally we have a tissue consisting of slender nucleated connective tissue spindle cells in which there are found here and there some few very small and atrophic uriniferous tublues, also some almost unrecognizable glomeruli.

From the above description it appears that the neoplasm is an angio sarcoma of a mixed cell type with advanced secondary degenerative changes. The neoplasm evidently started from the vessels.

It also appears that the tumor took its origin somewhere in the pelvis of the kidney, and in growing, compressed the parenchyma and caused it to undergo "pressure atrophy."

The chief interest of these malignant tumors of the kidney in children of course centres in their etiology. The view generally accepted at present is that of Cohnheim, that they are of congenital origin and due to misplaced embryonic tissue. He supposes that in the development of the kidney embryonic cells from the surrounding structures are incorporated in its capsule and subsequently give rise to a new growth.

The Wolffian body comes from that part of the nephrotome, which is near the myotome; thus it is easy to see that some of the mesothelial cells may become incorporated in the capsule and subsequently develop into striped muscle tissue strikingly like embryonic muscle. Such tissue has been observed in some cases reported in literature; none were found in the specimen from this case.

An exhaustive review of this subject has been published by Wentworth,* and by Walker.† Since this paper was written an abstracted account of a successful operation by J. C. Cotton for renal sarcoma in a nine-months' infant has been published in the current (June) number of the ARCHIVES OF PEDIATRICS. The infant lived nearly one and a half years after the operation, and finally died of a recurrence of the disease. The autopsy showed three tumors, all originating in the lumbar glands.

---

* Archives Pediatrics—Vol. xiii., No. 5.

† Annals of Surgery—Vol. xxvi., p. 529.

583 EAST DIVISION STREET.

DISCUSSION.

DR. MORSE.—I would differ a little from Dr. Churchill's conclusions on the examination of the blood. He said, I think, that the examination of the blood justified ruling out enlargement of the spleen. That does not seem to me to be quite right, as it is perfectly possible to have an enlargement of the spleen with the usual number of leucocytes.

DR. JENNINGS.—A case came under my observation during the past year in which a tentative diagnosis of sarcoma of the kidney was made, in which it was impossible to find evidence by the presence of leucocytosis of splenic enlargement and it was impossible to find the notch of the spleen. The case proved, however, to be one of splenic enlargement. An interesting fact perhaps was the absence of any urine changes in this case, which made the diagnosis of a renal tumor very problematic.

DR. JACOBI.—The case is of interest for several reasons. First, because these tumors that contain striated muscular fibres are very rare. They have been included under the term rhabdomyomata. The first, or one of the first cases, was published some twenty years ago by Brozin, a Swiss. Since that time, up to 1884, when I presented my paper on this subject before the Copenhagen Congress, five or six such rhabdomyomata have been observed. The cases at that time I could collect of sarcoma of the kidneys, including the number I had seen, was forty odd. That, I might state, was the first time that a differential diagnosis between sarcoma and carcinoma of the kidney was made. Formerly they went either under malignant tumors of the kidney or under the head of carcinoma. There is one diagnostic point of importance that might have misled the doctor, but did not. That is, in sarcoma the urine in 80 per cent. of the cases does not contain any blood or any kidney elements. There is no nephritis with it. Most of the tumors are of the exact nature of this. They are not tumors of the kidneys, but tumors outside the kidneys, lying between the capsule and the kidneys and compressing the latter. There is no nephritis and no blood. There is blood in a large percentage of cases of carcinoma and the presence of blood is more in favor of carcinoma than of sarcoma. Another point of interest in this case was that the child died so early. Most of them are not so badly off when they are nine months old, but many of them live two, or three, or four years. I have seen a number of them live to be five years of age. I collected, in 1884, cases that had lived nine, eleven and thirteen years. Usually sarcoma of the kidney is only unilateral. Metastases do not take place until very late, sometimes not at all. Generally the abdominal lymph bodies are not affected. That is why these cases can live so long.

DR. FRUITNIGHT.—I would like to call to the memory of the Society a case of sarcoma of the kidney which I presented at the meeting of the Virginia Hot Springs in which there were striped fibres, showing that it was a rhabdomyo-sarcoma.

Training the Sight.—Mr. R. Brudenell Carter, F.R.C.S., in a lecture before the London Society of Arts (*Medical Times*) directs attention to the fact that acuteness of vision may be increased by training. He suggests that the average acuter vision of country over town children is due to the fact that the latter see chiefly large objects and under large visual angles, while the former are habitually attending to smaller and more distant objects, seen at smaller angles. He suggests, therefore, that school teachers should be instructed to test the vision of new pupils and record the same in a register, informing the parents of any defects observed.—*New York Medical Journal.*

Hereditary Granular Kidney in Early Childhood.—Hellendall (*Archiv. für Kinderheilkunde,* xxii., p. 61) reports two cases of bilateral chronic interstitial nephritis in children whose mother also suffered from chronic nephritis. The older of the two lived two years, the younger six months. The history of the case points to the fact that the disease of the mother began with the pregnancy of the first child. The degree of contraction, which upon microscopical and macroscopical examination of the kidneys of both children was very intense and marked, leads Hellendall to the conclusion that the development of the contracted kidney began *in utero.* There was no syphilitic history. Bacteria could not be demonstrated. Scarlet fever and other etiological factors were wanting. Thus far but nine cases (including these two) of primary granular kidney have been reported.—*Medical Record.*

TWO CASES OF PROLONGED PNEUMONIA.*

BY FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician,
Hospital for Scarlet Fever and Diphtheria; Consulting Physician,
Children's and Infants' Hospitals, New York.

The two following cases are reported as being illustrative of the prolonged course which broncho-pneumonia sometimes runs. The first is quite typical of broncho-pneumonia complicating pertussis. The second is anomalous and typical of no ordinary type.

The first patient was a boy of twelve months, who had been ill three days at the time of my first visit. The onset of the acute symptoms had been somewhat sudden and occurred during the fourth week of whooping-cough. When first seen the child exhibited the familiar symptoms of pneumonia. Pulmonary consolidation could not be detected, but in the left lower lobe posteriorly, fine crepitating râles were heard over a considerable area and there was slight dulness on percussion. Actual consolidation was not detected until the sixth day. The case pursued a slow but typical course; the temperature began to fall on the fifteenth day and on the nineteenth day the child was markedly improved in all respects. Sudden rise of temperature on the following day, however, was followed by evidence of extension of the pneumonic process. An elevation of temperature on the twenty-sixth and twenty-seventh days was accompanied by new but rather indefinite physical signs on the other side of the chest. Following this the child gradually began to improve and seemed decidedly better. The consolidation, however, remained but little changed and the temperature never returned entirely to normal. On the thirty-sixth day the child again became worse. The temperature slowly arose from about 100° to 103°; evidences of consolidation appeared in the right lower lobe, and the child died on the forty-third day of the pneumonia. During the first four weeks the whooping-cough was extremely severe, the paroxysms being frequent and distressing. They gradually subsided, however, during the fifth week and were not severe during the last days of the child's life. The

---

*Read by title before the American Pediatric Society, Cincinnati, June 3, 1898.

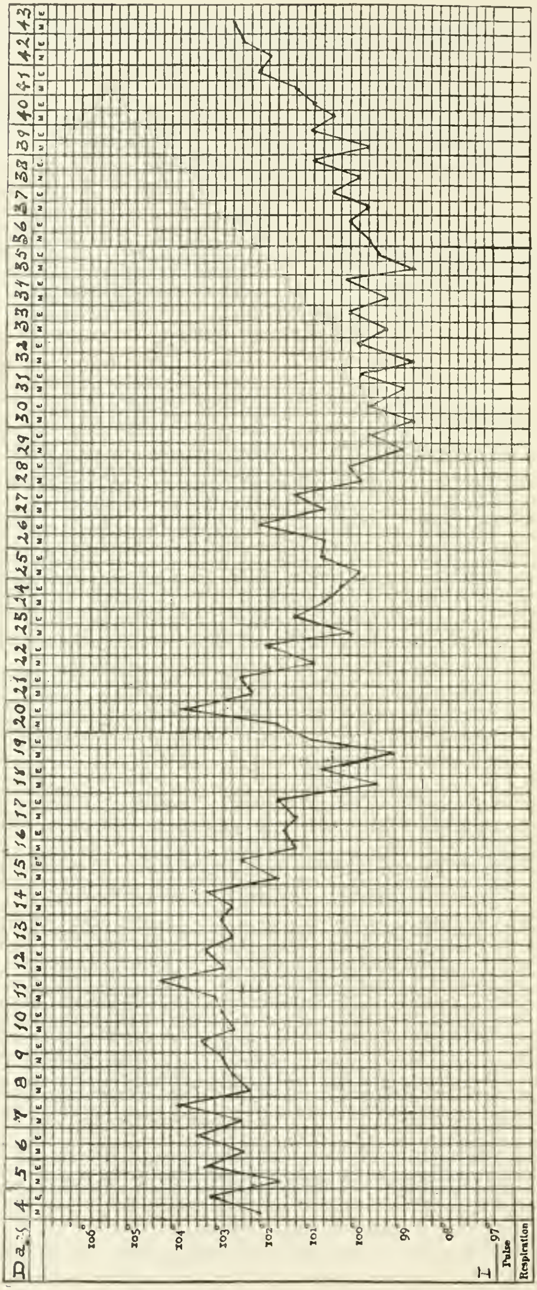


Chart I. TEMPERATURE RANGE IN A CASE OF PROLONGED PNEUMONIA, COMPLICATING WHOOPING-COUGH AND TERMINATING FATALLY.

child died apparently from exhaustion and not from the acuteness of the pneumonic symptoms.

The accompanying temperature chart shows four distinct febrile periods. Each of these was accompanied or soon followed by the evidences of fresh pneumonic consolidation.

There is nothing unusual in this history or temperature chart, except that the duration of the illness was somewhat longer than commonly occurs even in prolonged pneumonia. Cases of longer duration have been reported to this society and have shown, also, the same peculiar periods of increased fever. A prolonged and tedious course is quite characteristic of pneumonia when it complicates whooping-cough. In my experience it has been a particularly trying and fatal disease.

The second case was an extraordinary one, owing to the duration of the disease, the remarkable manner in which the child tolerated the fever, and the peculiar complication which seemed to have some active part in prolonging its course.

On December 16, 1895, I was summoned in haste to see A. D., a girl of twenty months. While playing with popcorn, some of which she was then eating, she suddenly choked. She coughed violently, and became so cyanotic that the mother was alarmed and sent for me. She was relieved after a few minutes, however, and when I reached her was apparently perfectly well except for a slight, loose cough which she had had for several days. There was no temperature nor dyspnœa. The mother was quite sure that some of the corn had been drawn into the larynx and had not been coughed out. A careful examination of the chest, however, revealed nothing except a moderate number of moist râles upon both sides posteriorly. Two days later I was again summoned and found that the child had been ill through the night. The cough had increased, fever had developed, and the child was restless and irritable. There was nothing, however, to indicate more than bronchitis. The temperature was 101° and rose to 102° in the evening.

On the following morning the temperature was 104 1-5° and the child presented the appearance so characteristic of pneumonia. The chest on both sides was filled with small râles. The physical signs, however, were not yet positive. Without going into farther details, it is sufficient to say that the child passed through a very characteristic and somewhat prolonged attack of broncho-pneumonia. Consolidation was detected clearly on the fourth day. The first evidences appearing in the upper portion of the right lower lobe posteriorly. The progress of the disease was rather slow, the temperature with one or two exceptions not going below 100° until the seventeenth day, and not actually reaching the normal until the twenty-third day. On the eighteenth day the temperature rose to 104° but fell immediately after the action of the cathartic. It was clearly due to indigestion.

The consolidation became quite extensive, involving all the middle portions of the right lung. It was slow in resolving and a bronchial element could be detected in the respiration on the twenty-ninth day, although the temperature had been practically normal for more than a week.

On the thirtieth day the temperature rose to 100 2-5°; the child began to sneeze and cough; the eyes became watery and red; and all the classical symptoms of grippe appeared. That disease was then prevailing extensively. Two older children in the family were already suffering from grippe, and the trained nurse became ill with it on the preceding day.

In view of the child's condition and the signs still present in the chest, I was very sorry to see an elevation of temperature and pursued a plan of treatment not common with me, that of administering antipyretic doses of phenacetine, together with small doses of salol. I did this with the hope of breaking the force of the grippe and preventing the recurrence of the pneumonia. The treatment was continued for twenty-four hours, but the temperature immediately arose when it was discontinued. The effect of this treatment is shown by the chart, where a fall of temperature will be observed on the thirty-first and thirty-second days. Signs of consolidation rapidly developed in the original seat of disease in the right chest. The consolidation slowly extended until it apparently involved the complete right side from the apex to the base posteriorly. In front there were small areas where the consolidation did not seem complete. The fever continued without remission for thirty-one days and the child presented all the classical signs and symptoms of broncho-pneumonia. On the twenty-sixth day of the second attack, I again attempted by the use of phenacetine to reduce the temperature, as the disease in the chest was apparently not extending, but upon its discontinuance after twenty-four hours the temperature ranged higher than before.

The condition of the child during the last two weeks of this period was very surprising. Although she had become wasted and emaciated to an extreme degree, she was much of the time quite bright and happy. It was impossible to keep her from sitting up in bed a part of the time, and she would play quietly for a half-hour at a time with toys or picture books. She was learning to talk, and learned many new words during the illness. She was seen several times by Dr. Holt, both during the first and the second attack. At his last two visits, upon seeing the temperature chart before seeing the child, he expressed a most unfavorable opinion, upon the general principle that such prolonged cases usually terminated fatally from exhaustion of the child. Upon seeing the patient, however, his prognosis was favorably modified.

During the whole second attack there was a paroxysmal and very distressing cough, causing the child at times to vomit; for a few days nourishment was almost entirely rejected. It was not, however, whooping-cough. As confirmatory of this belief is the fact that neither of the other children in the family had any cough. This cough became more paroxysmal and more difficult, and was evidently beginning to sap the child's strength. For three days it was particularly troublesome, and the temperature ranged higher than it had done for many days.

On the thirty-first day of the second attack and the sixtieth of the illness, after a prolonged and extremely violent attack of coughing, a very large mass of thick green mucus, having a bad odor, was expectorated. The nurse was about to throw it away when something attracted her attention. She found a very tough greenish mass of mucus in the centre, in which was imbedded a dark, irregular object. She washed and picked the mucus away, and saved the central substance. When I saw it, it had, she said, shrunken in size as it dried, and it is now smaller than it was then. It is now light and spongy, and appears like worm-eaten cork. It seems entirely easy to believe that it is the central hard portion of a piece of popcorn. Its long maceration had so changed it, however, that it is impossible to say that this is the fact either from its gross or microscopical appearance.

At Dr. Holt's first visit, he was told of the occurrence of the coughing attack preceding the onset of the disease, but by physical examination, did not find anything to indicate a foreign body in the bronchi.

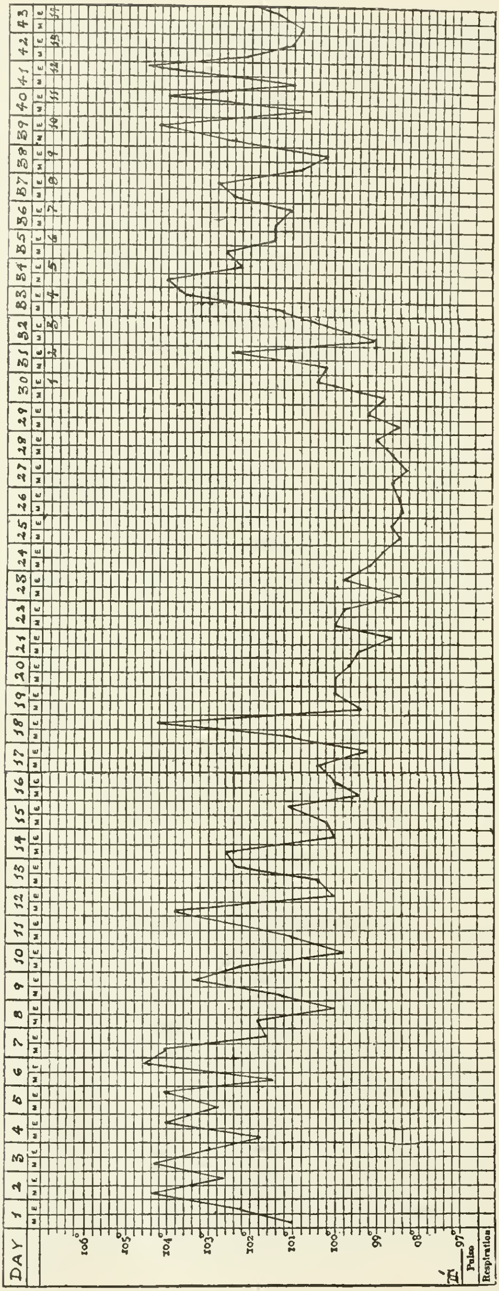


Chart II. TEMPERATURE RANGE IN A COMPLICATED AND PROLONGED CASE OF PNEUMONIA, TERMINATING IN RECOVERY.

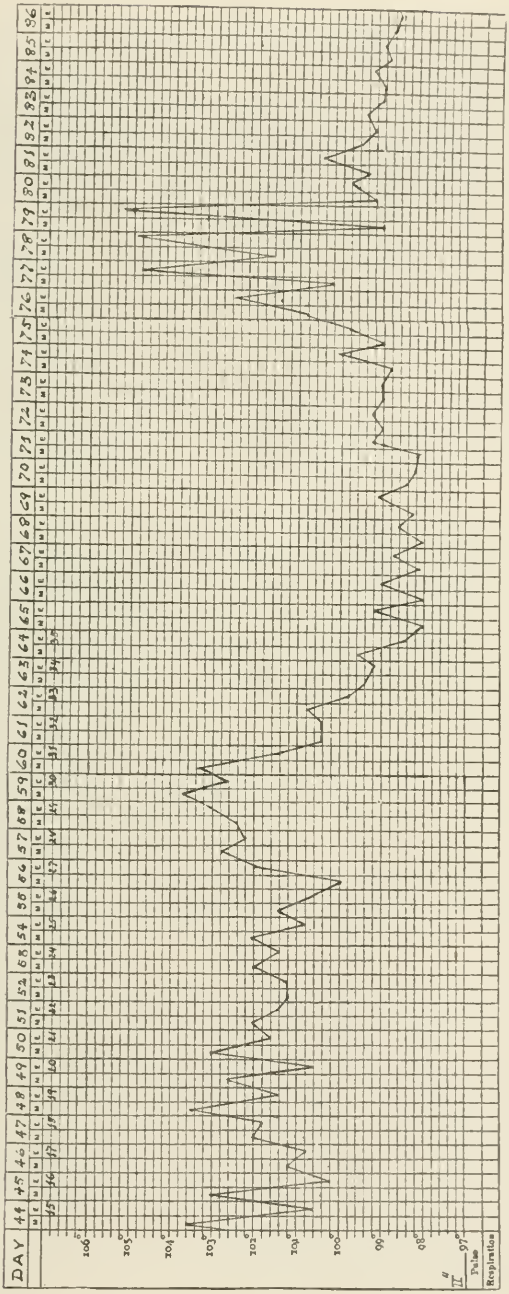


Chart II. TEMPERATURE RANGE OF PREVIOUS PAGE (CONTINUED).

This foreign body was expelled during the forenoon; the temperature that morning had been over 103°, at which point it had been ranging for three days. That afternoon the temperature fell to nearly 101°. It steadily declined during the next three days, and reached normal. The child's general condition at once began to improve. Evidences of resolution were soon recognized in the chest, but complete resolution was very slow. Bronchial respiration and dulness on percussion were heard in the central portions of the chest, where the consolidation first appeared, for six or seven weeks, and had not entirely disappeared six months later. At the end of a year, there was still dulness on percussion over the right side of the chest, but respiratory sounds were quite normal through its whole extent. During the following winter the child developed rapidly, mentally and physically, and she appeared like a perfectly healthy and well child.

A still further complication remains to be described. Ten days after the temperature had reached normal, when everything seemed to be going well, the temperature again began to rise, there being a distinct remission in the forenoon. At the same time the other members of the family began to have similar symptoms, which were clearly malarial in their origin. Preceding this the street in front of the house had been dug up for the repair of a sewer. A break in the house pipe was also found in the cellar. The character of this attack was not at first detected, as the signs of consolidation became more marked with the appearance of the fever. It was feared that the pneumonia was again recurring, although the cough and other symptoms had not increased. After full doses of quinine, the temperature returned rapidly to normal, and did not at any time again rise above 100°.

The part played by the foreign body expectorated on the sixtieth day is, to my mind, not entirely clear. The attack of strangling two days before the onset of pneumonic symptoms with almost continuous illness for nine weeks, the peculiar paroxysmal cough which rapidly disappeared, the fall of temperature which began sharply on the day the foreign body was ejected, certainly lead one to suspect that it had an influence in prolonging the course of the disease.

113 WEST NINETY-FIFTH STREET.

Clinical Memoranda.

LATERO-PHARYNGEAL ABSCESS IN AN INFANT SIX WEEKS OLD: OPERATION; RECOVERY.

BY FRANCIS HUBER, M.D.,
New York.

Jacobi writes "The frequency of stomatitis, pharyngitis, and rhinitis, and the activity of the lymph system at that period, explains the frequency of retro-pharyngeal abscess in the second half of the first year." The condition is not so infrequent at the third or fourth month for a number of such have come under my observation. The rarity of this trouble, aside from septic or pyæmic states, under two months, is my apology for reporting the case in an infant six weeks of age.

Annie F., six weeks old, native of New York, a pale, puny infant was presented at the Vanderbilt Clinic (service of Dr. A. Jacobi). We were told by the nurse that for about a week a few "kernels" had appeared on the right side of the neck. Several isolated glands were found at the angle of the jaw and along the anterior aspect of the sterno-mastoid on the right side. A mild nasal catarrh was present, very little trouble in deglutition, no fever or evidence of distress in breathing, mouth slightly open, tongue shows tendency to fall back in mouth, nasal twang to cry. No history or evidence of syphilis or tuberculosis.

Craniotabes and slight beading of ribs present. Muscles very flabby, weakness in general, and head falls back. Lungs and heart normal. In the course of the routine examination practiced before students in section teaching, the throat was inspected: a large swelling was found on the posterior pharyngeal wall laterally and to the right. Digital examination revealed fluctuation. Exploratory puncture with a needle confirmed the diagnosis of latero-pharyngeal abscess. As the mass was about the size of half a walnut, a grooved director was introduced and some of the pus allowed to escape, to relieve tension; the opening was then further enlarged by means of a pair of dressing forceps.

Nasal injections of normal salt solution were ordered and hourly doses of tincture of chloride of iron in water were given.

Notwithstanding the general low vitality, in less than a week the abscess cavity contracted and healed. The external glands, too, grew smaller and finally disappeared.

The early age and rapid healing under the simple means employed, though the general condition of the infant left much to be desired, render the case interesting and instructive. As a rule, the local symptoms in retro-pharyngeal abscess are pronounced and positive. The attention is drawn at once to the throat as the seat of the dyspnœa or dysphagia. In the case reported above, the local symptoms were not marked, in fact, were merely such we frequently encounter in nasal catarrh at this early period of life. Following the usual routine practiced in "section teaching" before the class at the Vanderbilt Clinic, the throat was examined, thus leading to the detection of the abscess, though the possibility of its occurrence had not been suspected from the symptoms present.

209 East Seventeenth Street.

A CASE OF ANKYLOSIS OF THE KNEE.*

BY WILLIAM L. RODMAN, A.M., M.D.,

Professor of Surgery and Clinical Surgery in the Kentucky School of Medicine, Surgeon to the Kentucky School of Medicine Hospital, Louisville, Ky.

A little girl of twelve years, living in Indiana, was recently brought to me with ankylosis of the left knee in bad position. The history of the case was that a year ago she had had a suppurative synovitis of the left knee. It never discharged spontaneously and was subsequently lanced by the attending physician. The cicatrices are still present, one just opposite the joint, and one lower down, almost midway between the knee and the ankle. After examining the case carefully and satisfying myself that the ankylosis was bony and that some more radical operation would be necessary, I sent her to the Kentucky School of Medicine Hospital, and operated upon her the following day at my clinic. I had not decided what operation I would do until after I cut into the knee joint. I had, however, thought that linear osteotomy was out of the question, as it would not correct the deformity. I did not care to take a cuneform osteotomy of the anterior surface of the femur, as I had done in another case, as in that case the bones had gotten their full growth, on account of the fact that it might interfere with the epiphyses. I hoped to be able to chisel away the adhesions which had taken place between the end of the femur and the tibia without removing any bone; but after cutting into the joint by the ordinary incision extending from condyle to condyle, I found that the patella was tightly adherent to the lower end of the femur, also slightly diseased as evidenced by constant pain in the lower end of the femur and upper end of the tibia. I removed the patella, believing that if left it could do no possible good, and feeling that it might defeat a good result. As I was not able to bring the limb down into proper position by chiseling away the adhesions, I removed a small portion of the lower end of the femur and the upper end of the tibia. I removed but very little bone, so little indeed that there will be no shortening.

The case has done uninterruptedly well, running a perfectly afebrile course. We re-dressed the wound so as to remove the drain, found no discharge of any kind, the wound perfectly dry, the skin not even reddened, and I am satisfied if I had let it remain healing would have taken place under one dressing. The child is robust and healthy and I expect a speedy union of the bones. The limb was brought down into a very slightly flexed position, because a patient cannot walk as well with a perfectly straight limb as one that is slightly flexed. Treves and some others take the position that the leg should be put in a position which is perfectly straight. I think this is not good teaching.

BILATERAL ANOPHTHALMOS.

BY S. S. GUERRANT, M.D.,

Roanoke, Va.

Mrs. G., a primipara at a normal labor and at full term, gave birth to a male child, having congenital absence of both eyes. There is no trace of the globe in either socket. The orbital fissures are about one-quarter of an inch in length; the lids have small poorly developed lashes; there is no orbital abnormality; the forehead is not high. In other ways the child is well developed. When first seen at four months of age, the child was well grown and in good condition. The mother says that the child takes no notice of sounds. Both parents have always lived in a remote country district and seem to be strong and healthy. There is no history of a maternal impression, and so far as could be learned, there is no blood relation between the parents.

515 ROANOKE STREET.

Fœtal Tuberculosis.—Doléris (*L'Obstétrique*) records two cases of maternal tubercle in one of which the disease was limited to the lungs and the fœtus escaped, for inoculation of guinea-pigs with its blood gave no results, while inoculation with the mother's blood caused tubercle in the animals. In the other case no traces of tubercle could be found in the fœtal organs; nevertheless, inoculation of a guinea-pig produced it, and Doléris concludes that the fœtus must therefore have been infected with the tubercle bacilli.—*British Medical Journal.*

The Cardiac Complications of Diphtheria.—Cardiac complications are most serious. In simple cardiac failure, the organ becomes irregular or intermittent, and the pulse weak, and either rapid or abnormally slow. In another type the symptoms are more allied to those of angina pectoris; in addition to cardiac failure there are attacks of abdominal pain or vomiting. Abdominal pain should always be viewed with anxiety, and the condition of the heart carefully observed. In case of cardiac complication the patient should be kept absolutely quiet in the recumbent position. In simple cardiac failure, cardiac stimulants are sometimes of decided benefit: strychnine, caffeine, and digitalis. In the anginal type belladona appears to have a beneficial influence. On account of the danger of heart-failure, the patient should be kept in the recumbent position until convalescence is well established; he should not be allowed to get up as long as there is the slightest sign of irregularity or weakness of the pulse. Plenty of easily digestible, nourishing food should be taken, and a certain amount of alcohol may be allowed.—J. W. Washburn, *Boston Medical Journal.*

Address.

THE RISE, PROGRESS, AND PRESENT NEEDS OF PEDIATRICS.*

ADDRESS OF THE CHAIRMAN OF THE SECTION ON DISEASES OF CHILDREN AT THE FORTY-NINTH ANNUAL MEETING OF THE AMERICAN MEDICAL ASSOCIATION, DENVER, 1898.

BY J. P. CROZER GRIFFITH, M.D.,
Clinical Professor of Diseases of Children in the University of Pennsylvania, Philadelphia, Pa.

The honor which you have done me in electing me your chairman brings with it the duty of opening the session with an address. I have chosen as my subject one of great importance to us, one in which I have felt great interest and to which I have given considerable thought. The subject to which I refer treats of the rise of pediatrics as a specialty, its present position as compared with its past and its needs for future growth.

One is often surprised that our medical forefathers knew so much. One is also surprised that they knew so little, and yet were undoubtedly useful members of society. They had the distinct advantage over us that each man, if well trained, knew all of everything medical that there was to be known. This was because there was not so much to know. The enormous additions to medical knowledge which went on as years passed rendered the arising of specialties in medicine an absolute necessity, yet it appears strange that pediatrics should seem to have developed so slowly as a special department. That no special teaching of it was given in any medical schools was probably due to the grave mistake of viewing the child only as a little man, of imagining that the teaching of the "Principles and Practice of Medicine" gave ample preparation for the encountering and mastering of the infant's disorders, and later of making the curious assumption that because a physician understood the diseases of women he must therefore necessarily have special cognizance of diseases of children—a view still prevalent in some quarters but waning rapidly.

---

*Abstract from the Journal of the American Medical Association, 1898. Vol. xxxi., No. 17.

Let us look briefly at the development of pediatrics in different respects.

TEXT-BOOKS.—Many matters in the domain of diseases of children are treated of in the works of the ancients, but the first book devoted solely to the subject, as far as I can learn, was written by Demetrius of Apamia about 260 B.C., and was entitled "De morbis puerorum." Then in the Middle Ages we find a work by El Rhazi, about the end of the ninth century, A.D., called "De ægritudinibus puerorum." In 1472 appeared the work of P. Bagellardus of Fiume, "De ægritudinibus et remediis infantum," and in 1473 Metlinger's book "Ein vast nutzlich Regiment der junger Kinder," which, according to Hennig, was the first printed book upon the diseases of children. The first book about children written in England was by Th. Payn, 1569, entitled "The Regiment of Life; whereunto is added a Book of Children." In 1653 Pemel wrote "De morbis puerorum," and some time before 1639 Harris published "De morbis acutis infantum." Sydenham, in a letter to Harris, said: "Without flattery, you are the first man I ever envied; and it is my belief that your little book will be more useful to mankind than all I have written."

Very many books in this department of medical science have appeared in Europe since these times, and, as years passed, the rate of appearance constantly increased. In recent years, from the classic "*Handbuch*," edited by Gerhardt, down to the valuable "*Traité*," edited by Grancher and his associates, and just completed, the large number of books on pediatrics of all sizes and range which have been issued bears ample testimony to the great interest in the subject taken by writers and readers abroad.

The development of text-book literature on diseases of children in the United States is even more interesting to us. This matter was so exhaustively reviewed by Adams that I shall touch it only briefly, and refer you to his valuable paper for fuller details. The first pediatric monograph appears to have been by Charles Caldwell, written in 1796, and entitled "An Attempt to Establish the Original Sameness of Three Phenomena of Fever (principally confined to infants and children) described by Medical Writers under the Several Names of Hydrocephalus Internus, Cynanche Trachealis and Diarrhœ Infantum." The first book especially devoted to children was published in 1790. This was written by a layman (or rather a lay-woman) and was called

"The Maternal Physician." The first book on pediatrics by a physician was entitled "Practical Observations on Diseases of Children, etc.," and was written by George Logan in 1825. In the same year the celebrated Dr. Wm. P. Dewees, so well known as one of the earlier eminent American physicians, published his work on children's diseases. From this date onward the American books upon pediatrics have been rapidly multiplying.

PEDIATRIC JOURNALS.—With regard to medical journals devoted to diseases of children, the first of which I can learn was one denominated *Archiv. für die Geburtshilfe. Frauenzimmer-und-neugeborner Kinderkrankheiten.* This was issued in 1787. The first journal devoted exclusively to diseases of children appears to have been *Analekten über Kinderkrankheiten*, which was commenced in 1834. Neither of these journals is longer current. Since this time there have been numerous journals started, some of them still existing. I count at present four in German, the oldest being the well-known *Jahrbuch für Kinderheilkunde*, begun in 1857. The other three are, in order, the *Archiv. f. Kinderheilkunde*, the *Kinderarzt*, and the *Centralblatt f. Kinderheilkunde.* There are four in French, of which the oldest is the *Revue mensuelle des Maladies de l'Enfance*, started in 1883, and the others, in order, the *Journal de Clinique et de Therapeutique Infantile*, the *Annales de Médecine et Chirurgie Infantiles*, and *Archives de Médecine des Enfants.* There are one in Italian, *La Pediatria*, two in Spanish, the *Anales de Obstetricia, Ginecopatia y. Pediatria*, and the *Archivos de Ginecologia y. Pediatria*, and one in Russian, the *Dietskaya Meditsina.* All but the two Spanish journals are devoted exclusively to diseases of children. Curiously, of journals published in English, there is not one owned and edited in England.

The United States is well represented in journals treating in part or entirely of the diseases of children. The *American Journal of Obstetrics and Diseases of Women and Children* was first issued in 1868. From the beginning it included articles upon the diseases of children, and later it set aside special pages for this department. The *Archives of Pediatrics* was established in 1884, the *Annals of Gynæcology and Pediatry* in 1890, and *Pediatrics* in 1895.

CHILDREN'S HOSPITALS.—Regarding hospitals for sick children, I find that the first of any sort appears to have been the Dispensary for Sick Children, founded in London by G. Armstrong, in

1769. It became extinct on Dr. Armstrong's death. It was intended only for out-patients, as was the one founded by Mastalier in Vienna in 1787. In 1802 the Maison de l'Enfant Jesus in Paris was changed, on the suggestion of Tenon, from an orphan asylum into a hospital for children of from two to fifteen years of age. This hospital, still in existence as the Hôspital des Enfants Malades, was the first institution designed solely for the care of sick children within its walls. It was not until thirty-two years later, in 1834, that the second hospital was founded—the Nicolas Children's Hospital in St. Petersburg. The development since then of similar institutions in different localities advanced at first only slowly, then moved rapidly. In 1852 the Great Ormond Street Hospital was founded in London. At that time, writes Dr. Charles West, there was no other hospital in England or America for diseases of children.

The first hospital to be started in the United States would appear to be the Nursery and Child's Hospital in New York, founded in 1854 and still in existence. Yet this institution was at first a maternity as well; and the oldest hospital purely for children is undoubtedly the Children's Hospital in Philadelphia, which was established in 1855. Now a glance at the list of benevolent institutions in the United States fills one with astonishment at the number of general and special hospitals for children; the homes, asylums, sanitoria, etc., throughout the country, to say nothing of the children's wards connected with nearly all the general hospitals for adults.

PEDIATRIC SOCIETIES.—Next let us consider the subject of medical societies for the study of diseases of children. All advance in this line has been very recent, leaving still much to be desired. Although England has numerous other special societies, such as a Balneological Society, a Medical Temperance Association, two Dermatological Societies, a Society of Anesthetists, etc., I have not yet been able to learn of a single organization devoted solely to pediatrics, out of 79 Provincial medical societies and 71 in London itself! The British Medical Association generally has a pediatric section; but not always, as for instance, at its meeting in 1897. There is not in Germany or Austria, as I am informed authoritatively by correspondents, a single independent society devoted to the study of diseases of children. The same has been true of France until within a few months. I have read very recently in the *Journal de Clinique* *et de Therapeutique Infantile*, that the hospital physicians of Paris are about to start a society of Infantile Medicine and Surgery. In Russia there appear to be two, one in St. Petersburg, started, as nearly as I can learn, in 1885, and one in Moscow, started, I believe, in 1892. Each publishes volumes of Transactions. Of pediatric societies in other European countries I can not speak authoritatively, but I have heard of none. The Gesellschaft der Naturforscher und Aerzte has its pediatric section, established in 1883 and meeting annually. The International Medical Congress has likewise a pediatric section. There was started in France in 1897 a Congress of Gynecology, Obstetrics and Pediatry, which is to meet annually. In Berlin, Dr. Baginski holds every two weeks, for the discussion of pediatric subjects, an informal gathering of men who have been his assistants.

This paucity of societies for the study of children's diseases in Europe, is in contrast with the manifestation of interest in this direction which the United States has shown, particularly recently. The American Medical Association established the Pediatric Section, in 1880, with Dr. A. Jacobi as its first chairman.

In 1860 an attempt was made by the New York Academy of Medicine to form a Section for Diseases of Children, but after a few meetings it was abandoned. Years later, in 1887, the present Pediatric Section was started, with Dr. J. Lewis Smith as its first chairman. This organization contains many of the leading writers on children's diseases in the country. It has always been a very active one, and has issued a very large amount of valuable matter.

The American Pediatric Society was established in 1888, with Dr. A. Jacobi as its first president. It has from its origin been an exceedingly active organization. Its volumes of Transactions contain a large amount of valuable scientific work, and are appreciated at home and abroad.

The Pan-American Medical Congress was founded in 1893, with a pediatric among its other sections, and Dr. John M. Keating as the first chairman of this section.

This covers the national pediatric associations. Recently there have been established two State societies. The Ohio State Pediatric Society, meeting once a year, held its first meeting in May, 1895, with Dr. S. L. McCurdy as its first president; and the Indiana State Pediatric Society, likewise meeting yearly, was organized in December, 1897, with Dr. P. J. Barcus as its first president, and holds its first meeting this year. I know of no other State societies up to the present time.

Of independent city societies for the study of children's diseases, there is in St. Louis the Bethesda Pediatric Society, which was organized in the autumn of 1895 with Dr. E. W. Saunders as its first president. Its membership is limited to fifteen, but invitations to outsiders are extended for each monthly meeting.

The Philadelphia Pediatric Society was established December, 1896, and holds its meetings monthly. It has proved a success beyond all expectation, has a large membership and interesting and well attended meetings, at which much work is done. Its proceedings are published regularly in several medical journals. I feel greatly honored in having been its first president, and in having had the opportunity to review the work of the first year in an address published in the *Archives of Pediatrics* a short time ago. It is possible, and even likely, that there are other city societies of which I have been unable to learn. Certainly they are to be welcomed.

PUBLIC TEACHING OF DISEASES OF CHILDREN.—Finally, let us consider the status of the public teaching of pediatrics in medical schools. An interesting and valuable contribution has been published on this subject by S. W. Kelley, which approaches the matter from another point of view, and, therefore, duplicates little, if at all, what I shall have to say.

Dr. Jacobi is my authority for the statement that Rosenstein, who wrote a text-book on diseases of children in 1752, and his predecessor, Roberg, introduced clinical instruction in diseases of children in Stockholm. This would appear to be the earliest instance of the official special teaching of the subject. As far as I can learn there was no other public teaching in Europe until 1850, when Geraldès gave instruction in surgical and Bouchut in medical affections of children in Paris: while at about the same time Mauthner was teaching pediatrics in Vienna, and Hauner in Munich. About 1858 Ehlers began lecturing in Berlin. The branch now receives attention in nearly all of both the large and the small universities, and is represented in many of them not by a clinical chair but by a recognized full professorship. In this respect Europe is still decidedly ahead of us, although we are rapidly gaining.

In England, however, the teaching of pediatrics would seem for the most part to be far from satisfactory. Taking St. Thomas' and St. Bartholomew's as examples of what prevails in most of London hospital schools, there are no special lectures on pediatrics given at all. In Manchester, under the teaching of Dr. Ashby, conditions appear somewhat more advanced. In Edinburgh a lectureship on this subject has been established only within very recent years.

Although Gunning Bedford, about 1850, taught diseases of children in a mixed women's and children's clinic in the University Medical College of New York, the first special chair in this department in the United States was established in the New York Medical College in 1860 and given to our distinguished fellow-physician, Dr. Jacobi. Since that time what a change! Yet the change came but slowly. Dr. Jacobi, writing in the Cyclopedia of the Diseases of Children in 1888—only ten years ago—says: "To my knowledge there is no school in the country which lays the least stress on that branch of instruction. . . . No examination being required by those to whom the student looks for direction and enlightenment, he neglects the study, to find out too late the mistake he has made in doing so."

No need to ask longer whether pediatrics is or should be a specialty. See only what the colleges are doing, for the proof that its position is being fully recognized. In order to illustrate this point I have examined and compared lists of regular medical colleges in the United States and, with the assistance of our secretary, Dr. Rosenthal, have applied to all of them for recent announcements and reports. From the great majority these have been received, but for the information regarding a few I have been obliged to depend upon the schools' advertised list of teachers. I find the names of 130 colleges, from which must be excluded 13, of which nothing whatever could be learned. (The post-graduate schools are not included in the analysis, although all of them have full chairs of diseases of children.) A study of the 117 remaining schools is most interesting. In 64 of them, *i.e.*, 54.7 per cent., there is a special chair for pediatrics. In 43, *i.e.*, 36.75 per cent., the chair is combined with some other department—not by any means always as the minor subject, and never buried in it without mention of the title. In 3 colleges there is only a lectureship. In only 7, *i.e.*, 5.98 per cent., is there no announced teaching of diseases of children; and I have knowledge that in some of these 7 special instruction in pediatrics is given. In all but 7, then, out of 117, the published announcements recognize the importance of pediatrics and advertise the teaching of it.

Further, of the 64 colleges in which the department has its own independent chair, in 49, *i.e.*, 76.55 per cent., the title is that of "Professor of Pediatrics" or "Professor of Diseases of Children." In only 15, *i.e.*, 23.43 per cent., the title is a minor one, usually "Clinical Professor," sometimes "Associate Professor," and in one instance "Professor of Clinical Pediatrics."

No positive conclusions can be drawn from these facts; but from them, with a study of the catalogues, certain very suggestive inferences are justifiable. It was clear in most cases where the title of "Professor" is given that the teacher is a full member of the faculty, and his department admitted as equal to any other. This shows well the recognition which pediatrics has gained throughout the country. Even in cases where this inference could not be drawn, another was evident, *viz.*, that the Professor is not limited to clinical work alone, but has, if he wishes it, the option of giving a systematic course in his department. In fact, this is distinctly stated in many cases. In the smaller number of colleges where such a title as "Clinical Professor" is employed I know that in some instances at least the teacher has this option. I dwell upon this point because my belief is that pediatrics should be taught both clinically and didactically; and I think the figures I give prove that this is now the commonly accepted opinion throughout the country.

Some more accurate details may be of interest. About two years ago, with a special purpose in view, I addressed a series of questions to the holders of chairs of diseases of children in a number of the leading medical schools of the United States, selecting chiefly those in which an independent chair existed, and a number of others in which the department was combined with some other, but where active teaching in pediatrics was going on. The questions were personal to a certain extent, and I feel authorized therefore in giving only the results in general, without mentioning the names of the institutions.

I have accurate statistics of 28 colleges, not gleaned from the catalogues, but from the direct answers of the teachers themselves. In 17 of the 28 colleges the department of pediatrics is represented upon the governing medical body of the school. This does not represent the actual percentage which holds good for all the schools of the country, for it happens that the 28 schools selected had an unusually large proportion of *clinical* chairs. In 14 out of 24 colleges suitable for comparison the professor of pediatrics receives a salary. This large proportion does not fairly represent the true importance which is attached to the chair by most schools, since in certainly 5, and probably in nearly all of the remaining 10, circumstances compelled all or nearly all of the other chairs to be unremunerated also. Therefore, in almost every one of the 28 colleges studied, the teacher in the department of the diseases of children is considered of sufficient importance to receive remuneration for his work. In all but 5 of the 28 colleges there are a number of other officers beside the professor who are actively engaged in teaching diseases of children. In 23 of the colleges didactic as well as clinical instruction is given; in a large number of the 28 ward class instruction is also used, while in a considerable number recitations are likewise held. In at least 19 of the 28 the chair does not depend on dispensary patients alone for clinical material, but has ward patients also.

All these facts are proof—if proof were needed—of the high estimation the medical schools have of the importance of pediatric teaching. Finally, in all but 3 of the 28 colleges, *i.e.*, in 89 per cent., there is a required final examination by the professor of pediatrics. In most of them this ranks with all other examinations. Here is the evidence that most medical schools are alive to the fact that pediatrics is important enough to *require* their students to study it. How different from the condition of ten years ago, as Dr. Jacobi shows in the words I have already quoted.

We have hastily reviewed the rise of pediatrics as a special branch of medical science, and the astonishingly rapid progress which it has made in very recent years. What now are its needs? The little I have to say here can be said briefly.

First, there is the need that the recognition of the importance of special teaching in diseases of children to medical students shall become universal. Almost all of the newer and more progressive schools do appreciate this. I am sorry to say that in some of our oldest and best known institutions, where one should expect the most advancement, the branch receives even yet by no means the recognition which it deserves, and which the schools of Germany and France are giving it. Conservatism is good in its place, but when pushed too far it becomes merely "old-fogyism." It may be safely prophesied that not many years will pass before the demands of the times, the demands of undergraduates—for these fully realize the value of pediatrics to them—will force even our most conservative colleges to discard for the new garments of modern progress that shabby, threadbare mantle of antiquity and precedent which they have so long and so closely wrapped about them.

Then, in nearly all of our schools there is the need that much more time be allotted to the study of children's diseases, and that more clinical material be provided for practical personal study by the students. In no other way can the students be given that actual knowledge of children's ailments which they are sure to need very early in their career as physicians. Finally, there is a need not to be overlooked—that no attempt shall be made actually to dissociate pediatrics from the main branches. This is equally true of all specialties, both in their teaching and their practice. The effort so to separate can do only harm and can not possibly succeed. Special teaching is absolutely required. It is impossible nowadays for the professor of medicine or the professor of surgery to cover the ground in the time at his disposal. But for all specialties there must be the foundation of the main branches of medical science, and all special branches must be studied in their bearing upon these. In one sense pediatrics is wider than general medicine. It is different from all other special branches in one important particular. These latter instance the application of general medical knowledge to special organs of the body. Pediatrics, however, is special knowledge of disease as it expresses itself in the general system of the child. The general physician need know little of children's diseases. The pediatrist must not only know adult medicine but special child-medicine as well.

What must be our aim, then, as physicians interested in this great branch of medical science? To so study it, practice it, write of it, teach it, work for it, that we may fit ourselves and others to aid in the best way the most helpless and defenceless, the most attractive, the most appealing of our patients—the children.

THE

ARCHIVES OF PEDIATRICS.

DEVOTED TO THE

DISEASES OF INFANTS AND CHILDREN.

DECEMBER, 1898.

Edited by FLOYD M. CRANDALL, M.D.,

Adjunct Professor of Pediatrics, New York Polyclinic; Visiting Physician,
Hospital for Scarlet Fever and Diphtheria; Consulting Physician,
Children's and Infants' Hospitals.

PUBLISHED MONTHLY BY E. B. TREAT & CO., 241-243 WEST 23D STREET, NEW YORK.

THE SPECIALTY OF PEDIATRICS.

That pediatrics is fully established as a special department of medicine cannot be doubted. There are now very few in America who deny it such a place. Any diversity of opinion on the subject arises from lack of agreement regarding the meaning of the word specialty. No one believes that pediatrics is a specialty like ophthalmology, which should be practiced only by a limited body of men. It is, however, none the less a special department, demanding special study and a certain number of special workers. Such a body of special workers has been developed during the last two or three decades. Many of these men now limit their practice strictly to pediatrics, their work being largely consultations and the supervision of delicate children. Others do general practice, but have become especially expert in the diseases of children from a clinical standpoint, while others, still, by study in laboratories and autopsy rooms, devote themselves to the more purely scientific side of the question. All these are specialists in the true sense of the term.

We have before taken occasion to point out the peculiarity of pediatrics, in that it is practiced by two different classes of men—the general practitioner and the strict specialist. There are, in fact, close specialties in which the practitioner confines himself strictly to his department, and there are broad specialties in which the practitioner becomes an expert, but does not limit himself entirely to one class of disease. Of the latter class, pediatrics is an example. It is an offshoot of the department of general medicine and must always continue to be closely allied to it. Man, the highest animal of creation, starts in life the most imperfectly developed and the most helpless of all. The formative and developmental period, therefore, is in many regards the most important one of his life. Hence, the proper management of infant man in health and the treatment of the many diseases peculiar to this period of growth and development form a specialty of very great importance. The truth of this statement is not modified by the fact that the majority of sick children are treated by the general physician.

THE GROWTH OF PEDIATRICS.

The history of pediatrics is peculiar in that, neglected for years, it has developed with extraordinary rapidity during a single decade. In view of the fact that infants and children form a large proportion of all patients treated by medical men, it would seem natural to expect that study of their diseases would have received early attention. On the contrary, they received such scant attention from medical teachers and writers that the young doctor went forth in almost total but not blissful ignorance of the patients who were to compose such a large part of his practice.

The specialty of pediatrics, as at present understood, is barely thirty years old. It is true that numerous papers and monographs upon the diseases of children were published during the early half of the century and even earlier. Several books were also written. In this country Dewees published a work on diseases of children in 1825. James Stewart published a similar work in 1843, and D. Francis Condie one in 1847. They were, however, inferior to the current works on medicine and surgery. In 1848, J. Forsyth Meigs published his book, which was superior to anything which had yet appeared. A. Jacobi and J. Lewis Smith, by coincidence, published their first medical papers in 1858. The first edition of Dr. Smith's book appeared in 1869. Until 1889, however, pediatric literature was meagre. There was no text-book on the diseases of children wholly satisfactory to teachers and writers.

Jacobi must be regarded as the apostle, if not the actual founder, of the department of pediatrics as we understand it in America to-day. "In 1857," says Adams, "Jacobi pressed the button which set the pediatric clinic in motion, and in 1897 he has the glorious satisfaction of seeing the fulfilment of his fondest hopes in the universal recognition of pediatrics as a distinct branch of medicine."

In 1860, he was appointed to fill the first special chair on diseases of children in this country, which had been created for him in the New York Medical College. Pediatrics made slow advancement as a specialty, however, and it was fully twenty-five years before a full professorship was established in any college. Full professorships now exist in many of the best medical colleges, and new ones are being created each year.

The year 1889 marks an epoch in pediatrics, for in that year Keating's Cyclopedia was issued. It is true that much good work had preceded this and made its publication possible. That work had, however, been as unostentatiously as it had been faithfully done, and the production of the cyclopedia was a surprise to the profession. Since that time no department of medicine has made more substantial advancement than has pediatrics. Though their number is not large as compared with some specialties, none can boast of better trained observers or more conscientious workers, nor has any other department produced a mass of literature of higher grade. It is indeed evidence of a magnificant personnel, that a department so meagre in satisfactory literature ten years ago should to-day be so rich. To speak only of the English language, the great works of Keating, Holt, Rotch, Starr, Jacobi, Ashby and Wright, and Sachs would alone shed luster upon any department of medicine, not to enumerate new editions of older works and a surprisingly rich periodical literature.

Pediatrics is rich in achievement as well as in literature. Not to mention personally a score of bacteriologists and pathologists, she claims as her own son, O'Dwyer, whose achievements have brought honor upon all medical men. Progress made in the feeding of young children and the management of infancy is but one of the many achievements of pediatrists. He is indeed blind who refuses to see in pediatrics to-day one of the most important special departments of medicine.

THE AGENCY OF THE ARCHIVES IN PROMOTING PEDIATRICS.

The Archives of Pediatrics was founded in 1884 by Dr. William Perry Watson. It being the desire of the founder to rely upon the medical profession entirely for the support of the new journal, no advertisements were to be received. This plan, proved only partially successful, and after adequate trial, it was found necessary to adopt the usual custom of all journals in America, both lay and professional, of publishing advertisements. The rule laid down at the beginning, however, of excluding advertising matter in every form from the reading pages has always been rigidly observed. Dr. Watson, the founder and original owner, was the editor for eleven years. In 1895 the editorial management was assumed by the present editor. In January, 1896, the journal passed under the business control of Messrs. E. B. Treat & Co., where it will permanently remain.

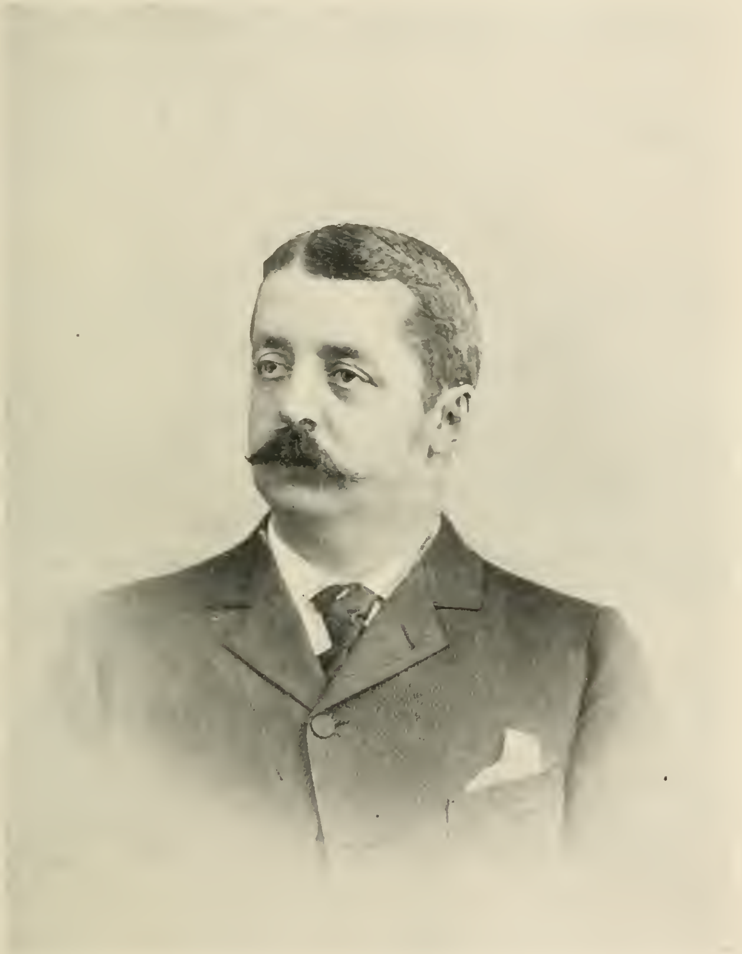
The launching of a pediatric journal fifteen years ago was a difficult and hazardous undertaking, and its success was only achieved by the energy and determination of its founder. In 1884, pediatrics was barely recognized as a special department of medicine. Without a pediatric society in the land or even the section of a society to stimulate men to special work; without a full professor of pediatrics in any medical college or any organized body of teachers or workers, the difficulties of maintaining a special journal were indeed great. A department was to be created. To-day that department is fully established and is recognized as one of the most important in medicine. Numerous factors have contributed to that end, and the ARCHIVES OF PEDIATRICS has not been the least of them. It has been the chief medium of communication between the active special workers and the mass of the profession, who have turned to them for assistance in the steadily increasing difficulties experienced in rearing children under the adverse conditions imposed by modern civilization.

The agency of the ARCHIVES in cementing into a component mass what otherwise would have been scattered and rendered of little avail has been very great. It has been a potent factor in combining and solidifying the diffused elements which now go to make up the specialty of pediatrics. It has been an incentive to pediatric work, second only to the American Pediatric Society. Its relations to that society, since its organization ten years ago, have indeed been so close that it would be difficult to determine the relative importance of each in crystalizing pediatrics into a special department. It has been the medium through which the society has year after year placed its work before the profession. A review of its past volumes will show that it has published a surprisingly large part of the best and most advanced work done by English-speaking pediatrists. Those volumes furnish the most complete available index of the progress of pediatrics during the past fifteen years.

DR. WATSON.

Dr. Watson, to whom the ARCHIVES owes its existence, was not an originator alone. For eleven years as editor he controlled its policy and supervised every detail of management, thus firmly establishing the character of the journal. Although taking no part in the editorial management during the past four years, he only resigns his more direct interests with the present number. Upon transferring the editorship, four years ago, although he retained interests in the journal and maintained intimate relationships with its management, the editor was made wholly and independently responsible for its scientific and literary conduct and the publisher for its business management. Those conditions will remain unchanged, and the journal in scope and policy will continue to be what it has been under its recent management. Dr. Watson was born at Bolton, New York, in 1854. He graduated from Rutgers College in 1875 and from the College of Physicians and Surgeons of New York in 1878. He began the practice of medicine in Jersey City, where he has since resided. He has been particularly active in works of various kinds designed to promote the advancement of medical science and the interests of the medical profession. With the co-operation of Dr. James T. Wrightson, of Newark, he secured the passage of the first medical examining law in New Jersey in 1890, which he revised in 1894, giving New Jersey one of the best medical laws in the Union. In 1891 he secured the repeal of the charter of the Medical and Surgical College of New Jersey, which was degenerating into a diploma mill. In 1892 he secured the passage of a midwifery law, making New Jersey the second state in the Union to pass such a law. He has been upon the visiting and consulting staff of many hospitals, and is at present President of the State Board of Medical Examiners of New Jersey. His time is now chiefly devoted to the interests of a great insurance company, of which he is Medical Supervisor.

In view of Dr. Watson's relation to the ARCHIVES as founder,



Wm. Perry Watson, M.D.

and his long service as editor, the publisher and present editor deem it but justice, as he is about to retire from more active identification with the journal, to make mention of his services to it and to the medical profession, and to present his portrait. His devotion to the department of pediatrics has been complete, often at large expense of time and money, and by his influence through the ARCHIVES, few men have been more instrumental in placing it upon a firm footing in America.

The publication in mutilated form by the *Medical Record* of the American Pediatric Society's Report on Scurvy, we beg to say was not the fault of the Recorder. Duplicate copies of complete corrected proof were sent to all the journals who were to receive the report. The responsibility of the Recorder ceased with the mailing with the proof copies, for he could not enforce their correct publication. If the Society publishes its reports in all kinds of journals, it must expect to see them sometimes mutilated, as they have been in some instances each year.

Central Lesions in the Fœtus after Dystocia.—Schultze (*Centralbl. f. Gynäk.*), notes how in many cases of children suffering from mental or nervous diseases it has been found that at their birth labor was difficult, or at least prolonged. Schultze and Pfeiffer, examining three infants which died shortly after delivery by forceps or turning, detected very evident nerve lesions. Multiple hæmorrhages were discovered in the bulb, the medulla, and the cord. In such as survive, it is easy to understand the development of nervous diseases.—*British Medical Journal.*

Bibliography.

Medical Diseases of Infancy and Childhood. By Dawson Williams, M.D., *Physician to the East London Hospital for Children.* Illustrated. Philadelphia and New York: Lea Brothers & Co. Pp. xvi., 634. Price $2.50.

This work the author informs us is designed to afford younger practitioners, and those who have not paid special attention to the subject, a guide to the clinical examination and treatment of disease as it occurs in infancy and childhood. He has adopted the rational plan of regarding the subject from the broad standpoint of general medicine, describing disease as it especially affects the young, pointing out the causes of its special incidence, and the peculiarities which the circumstances of child life impress on familiar diseases.

While the work is in parts somewhat elementary, the author has, on the whole, been very successful in his undertaking of making a book adapted to those of not large experience in pediatrics. The earlier pages, as in the case of most such works, are devoted to the general subjects of hygiene and methods of examination. The chapter on foods and infant feeding has some admirable features, but is, on the whole, inadequate. The modification of cow's milk occupies less than two pages and is unsatisfactory. Almost as much space as this is allotted to condensed milk and patent foods. The subject of diphtheria is treated in a satisfactory manner, the author being a firm advocate of the antitoxin treatment. He is, however, rather mild in his method of expression, a characteristic which pervades other portions of the book. Much space is given to tuberculosis, the subject being discussed in a very satisfactory manner. Other chapters worthy of special notice, are those on rickets, scurvy, cretinism, and the gastro-intestinal diseases. Acute cerebrospinal meningitis is classed with the acute infectious diseases. Although criticism might be passed upon numerous details, the book is, on the whole, an excellent one, and creditable to its author.

The Pocket Formulary for the Treatment of Disease in Children. By Ludwig Freyberger, M.D., Vienna, M. R. C. P., London., M. R. C. S., Eng., *Clinical Assistant, Hospital for Sick Children, Great Ormond Street; Curator of the Museum, Pathologist and Registrar, Great Northern Central Hospital.* London: The Rebman Publishing Co. 1898. Pp. xvi., 208. Price 6s. 6d.

This is a unique and rather peculiar little book. Drugs are arranged in alphabetical order and each are discussed under the heading of properties, use, therapeutics, dose, incompatibles, and correction of taste. The latter item will prove of considerable value, as the directions given for disguising the taste of various drugs are apparently practicable. The work, also, contains a fairly complete therapeutic index and various tables. The book will prove of undoubted practical value to the general practitioner.

The Sexual Instinct: Its Use and Dangers as Affecting Heredity and Morals. Essentials to the Welfare of the Individual and the Future of the Race. By James Foster Scott, M.D., C.M. (Edinburgh). Late Obstetrician to the Columbia Hospital for Women, and Lying-in Asylum, Washington, D. C., New York: E. B. Treat & Co. Pp. 436. Price $2.00.

Although in no sense a work on pediatrics, this admirable book treats of many subjects of vital importance to the pediatric practitioner. It has been said that the treatment of some children should have been commenced in the grandfather. If the author of the book in hand has not literally done this, he has at least begun with the father. Of all men, the pediatric practitioner sees most clearly the terrible meaning of that well-known text concerning the visitation of the sins of the father. Some of the most terrible of these visitations are considered in this book. When it is remembered that they are wholly preventable and in large part the result of ignorance rather than actual viciousness, the importance of a properly written book of this character becomes at once evident. That it is a properly written book is beyond question. While opinions must of necessity differ as to the best method of dealing with certain portions of the subject, all conscientious readers will agree, we believe, that the book is, on the whole, conscientiously, wisely, and judiciously written. Could it be widely read and its teachings followed, the practitioner of the future would have a far easier task and see far less misery than does his brother of to-day. It is a good book.

Cure of Goître in a Newborn Infant by Thyreoid Medication of the Mother.—Dr. Moose, of Toulouse, reported to the Paris Academy of Medicine on April 12th (*Gazette Hebdomadaire de Médicine et de Chirurgie*) the case of a suckling child, three months old, affected with a large bilobed goître. The mother also had one, without myxœdema, but with enfeebled intellect. The medication consisted of the daily administration of two tabloids representing about twenty-two and a half grains of thyreoid body. The treatment was suspended for a few days. After a month and a half the mother's goître had diminished, and the effect on the infant was remarkable. After a second period of treatment the nursling was completely cured.—*New York Medical Journal.*

Society Reports.

THE PHILADELPHIA PEDIATRIC SOCIETY.

Meeting of October 11, 1898.

FREDERICK A. PACKARD, M.D., PRESIDENT.

CONGENITAL ABSENCE OF THE HUMERUS.

DR. J. C. GITTINGS presented a case of congenital absence of the humerus, with a rudimentary attempt at a radius and ulna, and gave the following description: There is no articulation with the shoulder joint, the union being purely fibrous. The carpal bones represented by some four or five small bodies; the hand itself is somewhat small, though well formed. The particular interest in this case is its etiology. There are only four admissible causes for deformities of this kind: maternal impressions, intra-uterine constrictions from bands of lymph or from the cord, local arterial disease, or some deficiency in the original germ itself. In this case I was not able to have a personal interview with the mother, as she lives out of town, and the question of maternal impression must remain undecided. The question of constricting bands can be excluded on account of the comparatively perfect development of the hand, and for the same reason local arterial disease, so that we are forced to either one or other of the remaining explanations: maternal impressions or some defect in the original germ itself. The radiograph that I had taken was not altogether successful owing to the extreme nervousness of the child. It shows a full complement of phalanges and ·metacarpal bones, five carpal bones and a peculiar formation which I take to be radius and ulna. Two short bones are seen at an obtuse angle and joined on the angle of flexion by a thin web. From physical examination one would be led to think that the upper portion was a rudimentary humerus, but the fact that it is all of one piece and partially joined by a web of bone, makes it seem more probable that it represents a malformation of the radius and ulna. The boy was operated on for double genu vulgum. After operation the temperature was 101° and following day, instead of coming down, it showed a rise to 102°, and for the succeeding two weeks it ran an extremely hectic course for which I could find no cause, except an ill defined exudation at the apex of the left lung. As it showed no tendency to resolve, and was remarkable chiefly for its dulness, I aspirated and withdrew two or three c.c. of a serous fluid, not bloody, which failed to show the presence of tubercle bacilli on staining, and was sterile on culture both on agar and in bouillon. Within four or five days of the exploratory puncture the temperature reached normal.

Dr. J. Hendrie Lloyd.—We have under our care now at the Home for Crippled Children in this city, a girl who has complete congenital absence of both lower extremities. They are represented simply by little fleshy tabs at the hips. On one, I think, there is a rudimentary digit. There is no explanation for that case. The girl manages to get around very well by the aid of an apparatus designed for her by Dr. Shoemaker: the pelvis is set in a sort of basin supported by iron frames with artificial legs and feet enclosed in shoes and stockings. She progresses by means of crutches. The malformation is much more extensive than in this case, but it evidently belongs to the same class of congenital deformities.

Dr. Richard A. Clumann—In connection with the case just exhibited by Dr. Gittings, I expected to show an instance of the congenital absence of both femurs occurring in my obstetric practice, but for some reason the mother has failed to bring the child here. Its absence, however, need not prevent me from reporting the case. The anomaly is grave enough to be placed in the group of "monsters" in the classification of Geoffrey St. Hilaire: it belongs to the same family of *ectromelus* (*εϰτρωδις*, abortion, and *μελυς*, a limb), and the same genus *phœomelus*, *φωϰη*, a seal, *μελυς*, a limb) as that presented by Dr. Gittings. The femurs are entirely absent, or in such a rudimentary condition that they cannot be distinguished without dissection, the legs seeming to be articulated directly upon the pelvis. The feet, otherwise perfect, are turned upwards and outwards (equino-vulgus), but are readily placed in the proper position by manipulation. The right foot points backwards from external rotation of the limb, but can also be readily brought forward to its normal relations. In all other respects the child is normal, the penis and scrotum, which are said usually to show in lack of development when the lower limbs are thus affected, being perfectly formed.

The child, three months old, strong and lusty, is the offspring of a primipara of Irish birth, now thirty years old, and married one year. As far as known no anomalies have been observed in her family or that of her husband, who is like herself of normal development. I saw nothing in her pregnancy to call for comment other than that the hydrœdemia of that condition was more marked than usual. The "water broke" prematurely about twenty-four hours before active labor commenced, the process thereafter occupying thirteen hours. The fœtus presented by the right foot, the rotation, outwards and backwards of which, described above, became of interest in the diagnosis of the position of the body. The foot pointed towards the left of the mother's pelvis, which led to the natural inference that the back of the fœtus was toward her right, while further observation showed that really the opposite was the case, the back being toward the left.

I may add that there is a history of maternal impression in this case. The mother says that when she was one or two months pregnant she was accosted by a beggar with very short legs, whose appearance shocked and disturbed her very much. At this period of fœtation the lower extremities appear only as a trace, so that to those who believe in the effect of maternal impressions in producing such anomalies, this encounter with the beggar may be looked upon as the cause of the unfortunate arrest of development.

Dr. W. S. Stewart reported three striking cases of maternal impression and said that he thought they seemed to point to the fact that there were such things as maternal impressions which produce results such as I narrated. I had written a paper upon this subject and made a collection of a great many cases, all of which seemed to be traced back to something of that kind.

Dr. F. A. Packard—I recall a rather interesting case, a patient, who had been kicked in the mouth when a child and received a wound which left a cicatrix looking precisely like that resulting from the operation for hare-lip. She had six children and throughout the whole of each pregnancy she worried constantly, and ceased only when she was told that the child, when born, did not have a hare-lip; so that maternal impressions in that case at least were not very strong. In this case the woman really worried herself sick with each pregnancy, expecting the child to have hare-lip, and the impression made upon the mother was, I think, much more powerful than where a person happens to see some deformed creature in the street.

Dr. J. C. Gittings—One of the most marked cases of maternal impressions on record occurred at the German Hospital a few years ago, under Dr. Whiting. A woman was admitted suffering from fatal burns of the back thighs and buttocks. She was at the time over eight months pregnant. In the course of twenty-four hours. shortly before death, she miscarried. The child when born was apparently normal and was wrapped up and placed aside until after the delivery of the placenta. Some fifteen or twenty minutes afterward Dr. Whiting found blisters had appeared on the skin of the child in practically the same localities in which the mother had sustained the burns. The child lived but a few hours, and the body is at present preserved in the German Hospital Museum.

BIRTH PARALYSIS.

Dr. L. C. Peter exhibited two cases of obstetrical palsy in brothers four and eight years of age. In both cases the head presented, labor was tedious and in the younger boy instruments were used. After this birth the left arm and shoulder were found to be paralyzed and in the younger patient the clavicle was fractured. The muscles of the shoulder and upper arm wasted rapidly, the shoulder drooped, the humerus was rotated inwards, the elbow slightly flexed and the forearm in the position of pronation. In the older boy both scapulas were prominent and their inner borders stood off from the chest wall—the left more than the right. There was no weakness on the right and the muscles responded normally to galvanism. The biceps, brachialis anticus, deltoid, supra-spinatus, infra-spinatus, the rhomboids and serratus magnus muscles on the left were wasted and responded more vigorously to the positive than to the negative pole of a galvanic battery. The serratus magnus was not involved in the younger boy.

A third case occurred in an infant seven months old. Labor was instrumental and sometime after birth the left arm was found to be paralyzed. There was neither wasting nor deformity of the shoulder, no resistance on passive motion, no history of injury, fever, or convulsions after birth and no evidence of rickets. The reflexes were normal.

Dr. Peter considered the direct cause of injury in obstetrical palsy to be compression of the neck by the blade of the forceps badly applied or by stretching of the nerves by drawing the head aside to liberate the arms and shoulders in head presentations; and direct pressure by the operator's hand or over stretching of the neck in delivering of the after-coming head in breech presentations.

Dr. J. Hendrie Lloyd—I should judge that the main lesion in these cases is in the posterior thoracic nerve, the external respiratory nerve of Bell. This causes a paralysis of the serratus magnus muscle, which paralysis allows this peculiar bulging posteriorly of the lower angle of the scapula, giving the child a peculiar winged appearance. Such cases are rare. I never heard before of a case occurring from an accident during birth. Therefore I think they have a peculiar interest. I have once seen in a child a bilateral paralysis of the serratus magnus muscle, the causation of which was obscure. This paralysis occurs sometimes in adults from carrying a heavy weight on the shoulder. The posterior thoracic nerve passes through the substance of the middle scalena muscle. The carrying of a heavy weight on the shoulder may cause pressure on the nerve, or the trunk of the nerve may perhaps be twisted or strained in that muscle, in that position, and thus is caused this peculiar paralysis of the serratus magnus muscle on one side, allowing the inner angle of the scapula to bulge. The serratus magnus muscle has the peculiar function of holding the scapula close to the thorax and in that way presenting a firm basis of support for the action of the head of the humerus in the shoulder-socket. As an example of birth palsy this is a case of great interest. I think with reference to the reactions of degeneration in these cases that we should know positively about the faradic reactions before we attempt to say that there is a true reaction of degeneration. Dr. Peter tells me he was unable to test the faradic contractility, but it should be verified before the case goes on record. The deltoid and biceps muscles are certainly not paralyzed on either side.

Dr. J. P. Crozer Griffith—The history indicates that the whole left arm has been severely paralyzed. I have been talking to the mother, who corroborates what Dr. Peter says, that the child could not lift its hand higher than its head until recently. At the present time the smaller child can only lift the hand as high as its head. There is great softness of the muscles.

I think the cases pretty clearly have to be recorded as instances of true obstetrical paralysis. An interesting item is that two children in one family should be affected. Another interesting point is the diagnosis from cerebral monoplegia. Cases of cerebral monoplegia occurring at birth do take place. Although they are certainly very rare, we have constantly to keep the possibility in mind. Dr. Peter has dwelt upon the question of diagnosis, and there seems no possibility of considering these cases to be cerebral monoplegia.

Dr. F. Savary Pearce—In view of the fact that there was another child that was born with great difficulty and died soon after birth, and that these two boys have a very similar affection of the left arm, it might be a point of interest to know whether the mother had not a contracted pelvis which necessitated extreme manipulation.

Dr. L. C. Peter—In regard to the injury of the long thoracic nerve which supplies the serratus and to which Dr. Lloyd referred, I would say, that I do not see any reason why it should not be affected as well as the filaments that supply the other muscles. The nerve is derived from the fifth and sixth cervical which are the trunks injured in these cases. The serratus is undoubtedly weak, although the electrical reaction is not materially altered. In the other muscles the electrical reaction is distinctly changed. The right side is not affected, although the scapula stands away from the chest wall. The boy is poorly developed, and this in itself accounts for the position of the scapula.

ARTHRITIS IN AN INFANT.

Dr. Frederick A. Packard reported a case of arthritis of the wrist occurring in a six months old child the subject of vulvovaginitis. Examination of the vaginal discharge showed the presence of gonococci in large number. Absolute fixation upon a splint was the only remedial measure that produced any benefit. Entire recovery ensued upon the use of this treatment.

RETROPHARYNGEAL ABSCESS.

Dr. Alfred Hand, Jr., reported a case of retropharyngeal abscess, in a boy twenty months old. The onset of the illness was sudden; there was a catarrh of the alimentary tract, including the tonsils, without vomiting, but with a mucous diarrhœa; a catarrh of the respiratory tract extending from the pharynx well down into the swollen bronchi; an eruption of a few varicellar blebs; enlargement of the glands at the angles of the jaw, and a temperature curve ranging from 99° in the morning to 104½° in the evening. Wry-neck, disturbances of respiration, phonation and deglutition were absent. Palpation and inspection of the posterior pharyngeal wall were negative until the eleventh day, when a slight fulness was detected a little to the left of the median line. This increased so slowly that fluctuation could not be felt three days later, but incision at that time evacuated a considerable amount of pus. The extensive induration subsided slowly; the febrile movement continued for several days longer, when the evening rise gave way to a fall of temperature amounting almost to collapse. This was repeated twice after which convalescence was uninterrupted.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPEDIC SURGERY.

Meeting of October 21, 1898.

DR. A. B. JUDSON, CHAIRMAN.

OBSCURE INJURY OF THE HIP.

DR. G. R. ELLIOTT presented a boy two years and eight months old who had fallen from a tree two months before. He complained of the left knee, but was able to walk and run. His father reported that the left foot had been dragged with a decided limp and everted to a right angle, and that its normal position had been restored after manual traction and manipulation. A slight limp had, however, persisted. The left leg was ⅜ inches short and the left thigh ½ inch atrophied. Gentle manipulation seemed to produce a slight slipping of the joint. The child's ligaments were generally relaxed. He suggested the diagnosis of a dislocated hip reduced at once by manipulation.

DR. N. M. SHAFTER said that the limbs were practically of the same length, and that whatever might have been the lesion there were at this stage no positive signs of hip disease, dislocation or separation of the epiphysis.

DR. A. B. JUDSON found the trochanter enough above the line to make it probable that there had been a separation of the epiphysis.

Dr. T. H. Myers said that the limp might be from habit acquired when the hip was painful. The slight shortening in itself would not cause a limp. Irregularity in the length of the limbs had been said to be the rule rather than the exception. The cause of the shortening was not apparent since a dislocation, when reduced, should not leave any shortening.

Dr. R. H. Sayre had noticed the presence of marked knock-knee, and the father had said that the child had always turned in his toes. In other words, he had been unconsciously walking Indian fashion to make his feet more comfortable and to protect the arch of the foot. Beyond this the child appeared to be well.

Dr. P. J. Fiske thought that there might have been a bending of the femoral neck due to the accident or acquired in some other way.

Dr. Elliott said that the head of the bone was in its socket, wherever it might have been immediately after the accident. He thought that the question of separation of the epiphysis remained undecided. He stated that the child had ridden a bicycle frequently, since he was taught by his father to ride when he was eighteen months old. His greatest distance had been four miles. The boy was 36½ inches in height, and his weight was 31 pounds. His bicycle weighed 11 pounds, diameter of wheel 13½ inches, crank 4 inches, wheel-base 21½ inches, gear 46. He had ridden without trouble since the accident, but the exercise was at once forbidden when the patient was first seen a few days ago. His brother, 4½ years of age, began to ride a wheel when three years old. He had a record of a twenty-mile run and was in perfect health.

THE USE OF THE BICYCLE BY CHILDREN.

Dr. T. H. Myers said that in the case of a child who rode a bicycle great care should be used in the adjustment of the height of the seat and the handle-bar.

Dr. Sayre examined the boy's bicycle and said that the construction of the seat was such that it would compel the patient to appear before the Section on Genito-Urinary Diseases later on. He did not see why a boy of that age should not ride a wheel if he kept off the street. The exercise should not be more than he could stand. Small children sometimes rode ponies and seemed to get along pretty well.

Dr. Judson said that young children rode tricycles without attracting any especial attention. The bicycle furnished ischiatic support. In appropriate cases he advised its use when it was desirable to combine speedy and agreeable locomotion with relief of the lower extremities from carrying the weight of the body and from the pressure and concussion incident to walking and running. The same was true of horse-back riding. Aside from the risk of accident, he thought that the moderate use of the bicycle at any age would promote normal development and health.

Dr. R. Whitman thought bicycle riding was a good exercise for knock-knees and weak feet.

Dr. H. L. Taylor strongly disapproved of bicycle riding for young children, not from an orthopedic standpoint, but on the ground of its being injurious to the general health.

Dr. Elliott said that children generally assumed bad attitudes on the wheel, leading to faulty development of the thorax. At an early age the bones were soft and the ligaments undeveloped and unfitted to stand the special requirements of riding a bicycle and the result might be, as in the case of the patient, a relaxed ligamentous system. Bicycle riding by children tended to disproportionate development of the legs when compared with the arms. It should not take the place of general exercise which developed the whole body alike.

TRAUMATIC SPINE.

Dr. Fiske exhibited a man thirty-four years of age who had recovered from injury of the spine with paraplegia and rectal and vesical symptoms. The patient had been presented at the meeting of May 21, 1897.

There had been no return of the symptoms and the recovery was now, more than four years after the accident, complete. The violence had been extreme, followed by rigidity and pain in the dorso-lumbar region, complete paralysis from the waist down and incontinence of fæces and urine. There had been no crepitus and no deformity. The patient was perfectly helpless. The diagnosis was severe spinal trauma, concussion of the cord, damage to ligamentous structures and probably partial dislocation with spontaneous reduction. Treatment had been by a plaster of Paris jacket worn with occasional renewals for ten months. There had been no bed-sores. Recovery with control of sphincters had been complete, and the man was apparently in perfect health. In answer to questions Dr. Fiske said that ankle clonus had not been present, that the lower part of the abdomen had been sensitive, but the scrotum, penis and sacrum were anæsthetic, that the sensory paralysis disappeared first, that there had been considerable atrophy of the muscles of the thigh and calf probably from disuse, that the patient had felt nothing give way, as he was immediately unconscious, and that he began to use his legs in about four months and could walk at the end of seven months. The anæsthesia of the scrotum and penis had led to the opinion that the injury was at the twelfth dorsal vertebræ and first lumbar.

Dr. Elliott thought that the lesion had not been above the first lumbar. Above that point, which was the end of the cord, there would probably have been destruction of the anterior horn cells with ankle clonus and great localized atrophy. He could hardly conceive of anything less than this happening at a higher level after an injury attended with so much paralysis.

Dr. Shafter had seen several such cases. The lower the point of injury the better would be the prognosis. The result had certainly been very good in this case where there must have been a partial dislocation or fracture. He recalled the case of a man who was thrown from a vehicle and struck the ground in a sitting position. Rigidity of the spine had developed, but recovery had followed with perfect motion of the spine. A certain amount of compression of the anterior column could occur without serious results. If the posterior columns were injured we would get symptoms such as had been present in the patient exhibited.

Dr. Sayre had seen a case similar to the one under consideration. In a railroad accident in which an express car had rolled down a bank, a man had been struck violently by the safe. He was paralyzed from the waist down, with no control of the rectum or bladder. This condition lasted some three years. He gradually improved under treatment similar to that described, and had been restored to perfect health.

FRACTURE OF THE SPINE.

Dr. Whitman presented a patient with a rather different history. He was a young man twenty-two years of age, who had fallen twenty-five feet from a cliff. He could walk with assistance, and, although he had pain, stiffness and weakness in the back, numbness and weakness in the legs and pain in the lower part of the abdomen and the anterior surface of the thighs, he resumed work as a clerk at the end of a week. Dr. Whitman had examined him on August 8th, about two weeks after the accident, on account of a "lump" composed of the projecting spines of the second, third and fourth lumbar vertebræ. There was some pain on extensive motion of the back and moderate rigidity at the seat of the fracture. A brace relieved the symptoms in a great degree, and at the end of a month he considered himself well, although he was still wearing the brace. It was seen that the normal lumbar lordosis had been replaced by a projection. Motion was practically normal. There had been fracture and compression of the vertebral bodies and yet the symptoms had been insignificant.

Dr. Myers recalled the case of a man who had fractured his spine in a fall of twenty-five feet in a double forward position. Pain was not severe, but weakness in the lumbar region, the seat of the fracture, prevented sitting up or standing. He was in bed for three weeks and then walked with a cane. A kyphos was found and a spinal brace relieved his symptoms very quickly. He was well in six months. Fractures of the vertebræ often gave symptoms, but purely marked when compared with fractures in other locations. The most common symptom was weakness. Crepitus and false points of motion were not usually detected. Pain was moderate and deformity was frequently absent until after the patient had assumed the erect position for several days.

UNUSUAL FRACTURES OF THE NECK OF THE FEMUR.

Dr. Taylor presented a boy fifteen years of age who, in October, 1896, felt sudden severe pain in the right leg followed by lameness for two weeks. No shortening was noticed. After that he had lameness and disability with but little pain till January 3, 1897, when he slipped and fell on the floor with the knee bent under him. He was unable to rise or walk and the neck of the right femur was found to be broken. He was treated by a plaster of Paris application, and in July, 1897, when first seen by Dr. Taylor, he was limping badly. The trochanter was one inch above the line. There was extreme eversion and very limited motion. Crutches were advised. In December, 1897, the patient had been free from pain for many months, and there was increased motion. In April, 1898, under an anæsthetic, more mobility and lessened eversion was gained by manipulation which was repeated in September, 1898, with further improvement.

Status praesens: 30 degrees of free lateral motion, considerable free rotation and 30 degrees of flexion. Trochanter a full inch above the line. Walking was very free, but with a slight limp. An apparatus, soon to be laid aside, was worn to prevent outward rotation.

Dr. Taylor also presented a boy of eighteen years who, in December, 1897, fell on his left knee. There was immediate stinging pain in the left hip but he could walk with some assistance. He soon walked with a cane and three weeks after the fall there was a marked limp with very little motion in the hip. The limb was one inch short and rotated outward. The trochanter was one inch above the line and there were tenderness, induration and muscular spasm about the hip. Treatment was by traction splint, long crutches and a high sole on the foot of the well side. In May, 1898, the patient had been free from pain for two or three months and there was more motion. The splint was removed. In September a cane was substituted for the crutches. *Status praesens:* Walking with a considerable limp. No pain. Can raise the leg while lying. Shortening of one and one-half inches. Limited motion at the hip and adduction. These cases were of especial interest on account of the youth of the patients and the slight violence of the accidents.

Dr. Whitman said that the first patient doubtless had coxa vara which weakened the neck of the femur, causing it to break under a moderate degree of violence. In three cases of coxa vara in young subjects he had operated by removing a wedge from the base of the trochanter in order to restore the neck to its normal position and strength. The second patient also probably belonged to the same class. He recalled the case of a young colored girl who, after a period of slight limping and outward rotation with slight stiffness of the hip and pain in the thigh, suffered a fall on her way to school. She was carried home with typical fracture of the neck of the femur. She was treated by the use of a traction splint with a favorable result.

Dr. Taylor said that he was confirmed in his opinion that bending of the neck of the femur had preceded the accident and had made easy the fracture of the bone in the case of the first patient presented. In the second case, however, there had been no previous signs or symptoms of deformity of the femoral neck and such a condition must be considered hypothetical.

CONGENITAL DISLOCATION OF THE HIP.

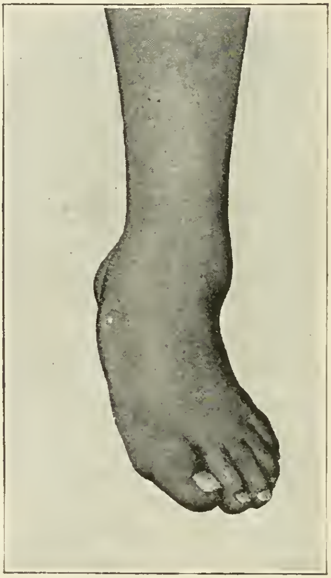
Dr. Elliott exhibited a further dissection of the specimen shown at the last meeting of the Section. The patient had been a girl seven years of age. The dislocation of the right hip had been upward and forward. The neck had been found to be short and the muscles shortened and somewhat atrophied. During life there had been more than one inch of shortening and the child had walked with difficulty like one with weak muscles. The head had made a deep and extremely well defined acetabulum lined with cartilage, below and near the anterior superior iliac spine. The original acetabulum was almost equally well defined, measuring one and one-eighth inches in its vertical and one inch in its transverse diameter with a depth of one-fourth of an inch. So well defined a first acetabulum at this age was rare. Lorenz cited one at the age of eighteen years and the older anatomists found them at very late periods of life. As a rule, however, the acetabulum not in use failed to keep pace with the development of the other parts, and at an age much younger than that of the specimen, it was usual to find it rudimentary and frequently presenting a convex contour. The old acetabulum was found to contain some fat but was chiefly occupied by an exceptionally large ligamentum teres, measuring one and one-half inches in length, three-fourths of an inch in width and three-sixteenths of an inch in thickness, running from a well defined cotyloid notch through the vertical diameter of the acetabulum to an insertion in the femoral head. As a rule the ligamentum teres had been found at the age of three or four years to be a mere ribbon or to have disappeared. In the usual dislocation on the dorsum ilii, the disappearance of the ligament might be explained by the facts that it had no function and was compressed closely between the margin of the acetabulum and the femur. In the specimen, however, the displacement had been directly upwards, and the tremendous size of the ligament was apparently the result of its being called on to sustain the weight of the trunk at every step in walking. Its great size, then, was physiological rather than pathological.

Dr. Whitman said that the old acetabulum appeared to be of fair size, and that, as the tissues were doubtless far more yielding in life than in the preserved specimen, an operation by the open method in which the hypertrophied ligament would have been removed, might have been successful.

Dr. Sayre said that, as the head was as broad as, if not broader than, the place where the acetabulum should be, it was doubtful whether chiselling away a part of the head would not have been required before reduction.

TABETIC TALIPES VALGUS.

Dr. Judson presented a photograph of talipes valgus of the left foot in a patient affected with locomotor ataxia of several years' duration. It was an instance of Charcot's joint affecting the tarsus. The patient's right knee joint had been exsected for this condition, but stability had not been restored to the knee by the operation. Pathologically there were pulpy and fluid degeneration of the bony and other tissues and disintegration of the structures of the joints. Equinovarus also occurred in locomotor ataxia and in Friedreich's disease, but was the result, not of bony changes, but of abnormal muscular action. The primary disease was so serious and disabling that the question of treating these secondary affections was not often a practical one. Mechanical treatment might, however, be considered with three objects in view: (1) to give firmness to the foot and ankle and direct the sole to the ground; (2) to give lateral support to a Charcot's knee, and (3) to stiffen the knees by the use of automatic joints in order to prolong the period when locomotion is possible with the aid of crutches.


TABETIC TALIPES VALGUS.

Current Literature.

MEDICINE.

Yale, Leroy M.: Care and Modification of Milk for Infants' Use. (*Canada Lancet.* 1898. No. 6; Medicine. 1898. Vol. iv., No. 9.)

The author believes that the many and various requirements given for good milk may be all grouped under the three headings given by Dr. Coit in a recent article on Certified Milk: First, an absence of large numbers of micro-organisms, and the entire freedom of the milk from the pathogenic varieties; second, unvarying resistance to early fermentative change in the milk, so that it may be kept under ordinary conditions without extraordinary care; third, having a constant nutritive value, of known chemical composition, and a uniform relation between the percentage of the fats, proteids, and carbohydrates.

The first requirement covers many. Its fulfilment demands that the milk shall be clean in every way; that it shall be free from the dirt from the cow which is so constant—the hairs, the fragments of the bedding, of dung, of what not—free from dust and other impurities from the stable and its surroundings, as well as the various kinds of dirt due to careless handling of the milk. Freedom from pathogenic germs demands that the cow herself shall be equally free. That she shall have no ordinary disease, and especially that she be free from tubercle. It further demands that those handling the milk shall be free from communicable disease, and that the milk shall never be brought into contact with anything which may have been contaminated. It will be noticed that absolute freedom from bacteria, except the pathogenic kinds, is not called for. This is a practical recognition of the fact that the first part of the milk usually does contain bacteria, which have entered the teats or the udder from without. Also, that while the later milk, strippings particularly, is nearly or quite sterile, the separation of the parts of the milk is not commercially practicable.

The second requirement largely depends upon the first. It demands the best possible handling of the milk, its perfect bottling, isolation, and subsequent care. This requirement can be more perfectly fulfilled if the milk can be delivered in a very fresh condition and with but short transportation, although milk properly handled and cared for can be kept for a surprising length of time.

The third requirement of constant nutritive value calls for the use of herd milk (as against the milk of one or very few cows) to escape the derangement of the milk from any excitement whatever, especially that of rutting, which is notoriously damaging. It calls for good and uniform feeding, with a proper proportion of the nitrogenous and non-nitrogenous elements in the food.

The milk laboratories in the few years that they have existed have been of prime importance in the systematizing of infant feeding. They are the result of the work of Dr. Rotch of Boston, and of Mr. G. E. Gordon. The general plan of a milk laboratory calls for such arrangements as guarantee the most scrupulous care of the milk after its receipt; the testing of it for its fat value, that being the variable element. Such testing is generally done with the Babcock milk tester, which is in effect a magnified centrifuge. The milk is then separated by the ordinary centrifugal separator into a cream of a standard fat value and a residual milk. The fat standard for cream adopted in the laboratories is 16 per cent., the fat being nearly all removed from the residual milk.

If the milk of the mother was agreeing with the infant so far as it went, its composition, if known, would probably fairly serve as a guide for the composition of the modification to begin with. Low percentages are desirable at the beginning of artificial feeding, and above all in gastro-intestinal derangements accords with the experiences of most of those who, as the phrase runs, have become accustomed to " think in percentages."

The advantages of the milk laboratory are evident. First of all, as now conducted, the best of milk, both as to purity and uniformity, is assumed as the basis of modification. Next is the great advantage of accuracy in the work. With extemporaneous mixtures, even if conceived in the main correctly, we very often indeed find something still unsatisfactory. But practically for one reason or another, from want of the laboratory or want of means, most infants' food, if of modified milk at all, must be home-modified. Therefore the question of home-modification becomes in the wider sense the most important of all.

Various plans of household modification have been advised, all intended to render easy the calculation of each ingredient.

But all depend upon the assumption of certain fixed fat values in cream. This is different for separate creams, according to the speed of the separator, and gravity or raised cream, of course, varies according to the time the milk has stood. A few of the methods of calculation which seem most generally useful are given by the author.

Ferrien: Infantile Hysteria. (*Arch. de Neurologie.* Vol. iv., No. 22 and 23.)

Eighteen cases are reported in children from one to fourteen years of age, eight being under four years. Boys and girls were affected with equal frequency. The hysteria of infants is as frequent as the hysteria of adults, and it is of the same varieties, simulating disease of the medulla, of the cerebrum, or of any other viscus. Among the reported cases five gave the clinical picture of meningitis; four showed organic paralyses and contractures, one had toxic paralysis, two had polyuria and polydipsia as in true diabetes, and one simulated coxalgia. In addition, hysteria may be associated with other neuroses and organic diseases, making the diagnosis more difficult. Thus a rythmic chorea accompanied an atrophic infantile hemiplegia in one case, and in another hysteria co-existed with persistent mental degeneration; Pott's disease and hysteria also occurred in the one patient. The diagnosis is always difficult in children, and must be made with the greatest reserve and care in the light of family history and the symptoms. The prognosis is usually accounted good, and the symptoms are certainly less tenacious of correction than in adult life, but they recur with remarkable facility in the same or different forms. Consequently the future of any child with marked hysteria must be very gravely considered. As etiological factors we have to consider the predisposing causes of a neurotic or alcoholic heredity, and the exciting causes of trauma and strong emotions—fanatical, religion, superstition, fear, etc.

In regard to treatment, prophylaxis must consist in the avoidance of over-stimulation, both emotional and intellectual, in children who have an hysterical predisposition. As for the disease itself, drugs are absolutely valueless, except iron, in anæmic cases. It is by appealing to the child's intelligence to understand and carry out an order, and by convincing him that he is going to get well, that the greatest success is obtained. As for the use of hypnotism, valuable as it is in the hysteria of adults, it must be used with extreme care, if at all, in these susceptible children, and in early infancy can hardly be of use at all.

Davis, Effa V.: Three Cases of Tetany. (*Chicago Medical Recorder.* 1898. Vol. xiv. No. 6.)

The first patient was a male Italian child, fifteen months old. The second was also an Italian, a boy of eight months. The third was the child of American parents, a boy of eighteen months. All showed marked disturbance of digestion, which condition preceded the tetany. All were complicated by disturbance of the respiratory tract, which also preceded the tetany. All were subjected to bad hygienic surroundings. Two showed prominent signs of rickets, the third might have developed such a condition later. All were attacked with tetany after a period of sickness from other causes.

Copeman, S. Monckton: The Natural History of Vaccinia. (*British Medical Journal.* 1898. No. 1951.)

The subject is considered at great length in the three Milroy lectures. Regarding the advantages of glycerinated calf lymph the author's conclusions are as follows:

1. By employing the method of glycerination of lymph (pulp) great increase in quantity can be obtained without any consequent deterioration in quality, the percentage insertion success following on its use being equal to that obtained with perfectly active fresh lymph.

2. Glycerinated lymph does not dry up rapidly as does unglycerinated lymph, thus symplifying the process of vaccination.

3. Glycerinated lymph does not coagulate, so that it never becomes necessary to discard a tube on this account.

4. Glycerinated lymph can be produced absolutely free from the various streptococci and staphylococci which are usually to be found in untreated calf lymph, and which are considered by Crookshank and others as liable to occasional suppuration.

5. In like manner the streptococcus of erysipelas, in the event of its having been originally present in the lymph material, is rapidly killed out by the germicidal action of the glycerine.

6. The tubercle bacillus is effectually destroyed even when large quantities of virulent cultures have been purposely added to the lymph.

7. The possibility of inoculation of syphilis is eliminated, as the calf is not subject to this disease.

8. The necessity for collecting children together, with the attendant risk of spread of infectious diseases, or of transporting a calf from place to place, is obviated, while the danger of "late" erysipelas in the child is minimized by reason of their being no necessity to open the mature vesicles for the purpose of obtaining lymph.

9. The bacteriological purity and clinical activity of large quantities of the lymph can be readily tested prior to distribution.

10. By reason of the possibility of keeping large stocks of glycerinated lymph on hand for considerable periods of time without appreciable deterioration, any sudden demand, such as is likely to arise on an outbreak of epidemic small-pox, can be promptly met.

11. The expense of producing glycerinated lymph is proportionally small, since the amount obtainable from each calf is enormously increased.

In the preparation of lymph supervised by the author, the following conditions of scientific cleanliness are observed:

(*a*) The construction and administration of the stabling for the calves.

(*b*) The means of washing or bathing calves before their vaccination.

(*c*) The construction, cleansing, etc., of the operating rooms.

(*d*) The cleansing of the vaccinated surface of the calf with germicidal preparations and sterilized cloths before collection of the lymph.

(*e*) The use of clean sterilized outer garments by all officials concerned in the processes carried out.

(*f*) The sterilization of all instruments, etc., employed.

(*g*) The admixture of the lymph material of pulp with glycerine; its preparation and storage under conditions of laboratory freedom from extraneous organisms.

With a view of meeting all possible criticism as to the chance of conveying tuberculosis together with calf lymph, he found that, notwithstanding the well known rarity of that disease in calves, together with the now recognized germicidal effect on the tubercle bacillus when deliberately added to calf lymph prepared with an aqueous solution of glycerine as described, it was the practice not to issue any lymph until a report had been received from a veterinary surgeon, after slaughter of the animal, of the freedom of the calf in question from tuberculosis or other disease.

HYGIENE AND THERAPEUTICS.

Rosenthal, Edwin: Antitoxin in Laryngeal Diphtheria. (*Maryland Medical Journal.* 1898.)

The author gives a tabulated report of sixty cases of laryngeal diphtheria treated with antitoxin. Of these twenty-eight required intubation. Of the thirty-two that were treated without intubation, but one died. Of the cases intubated, eight died, a mortality of 28 per cent. Even this the author regards as too high, but several of the operations were performed when the child was in extreme condition. In several cases the tube was required for a longer time than the average in such cases, but in spite of this the total average showed a diminution in the time, the average duration being 128 hours. Taking the report as a whole the mortality is shown to be 13⅓ per cent.

Coues, W. P.: Results of the Immunization of Fifty Children at St. Mary's Infant Asylum With the Antitoxin of Diphtheria. (*Boston Med. and Surg. Journal.* 1898. cxxxix., No. 2.)

During the latter part of February and March, 1898, an epidemic of diphtheria occurred at St. Mary's Infant Asylum, the origin of which was obscure.

It was decided, therefore, to immunize all the children in the house, and that no child should be admitted without receiving an immunizing dose of the serum.

The oldest child immunized was five years, the youngest one day. The serum was obtained from the Harvard Medical School, each bottle containing 10 c.c. of 1,000 units' strength. The largest immunizing dose given was 5 c.c. to the child of five years, the smallest ½ c.c. to the baby of one day. Children of six months to one year were given 4 c.c., those under six months 3 c.c. The injections were all given in the right axillary line. Most of the injections were made on March 22d to 24th; after this, each new child was immunized as it came in.

The older children were not affected in the least by the injections, playing as usual as soon as the dressing had been applied. The infants, on the contrary, were restless and cried for a considerable time after the injections. The temperature of three infants reached 101° five hours after the injections; the next morning two were at normal, and the third 99.5°. On the morning following the injections the younger children in the upper ward all had slight coughs; this was not noticed in the older children injected. The cough passed away in two or three days.

Urticaria occurred in 14 cases out of the 50 injected; it proved a late-manifestation, occurring from nine days to two weeks after injection. A punctate erythema of brief duration occurred in two cases out of the 50 injected. In one case there was soreness and pain in the right knee-joint; this passed off in two days.

From February 15th to March 22d, 18 cases of diphtheria had occurred. From March 22d, the date the injections were begun, for a period of nearly three weeks, no cases of diphtheria occurred. At the end of this time the children were not immunized again. Cases of diphtheria began immediately to occur, and continued until all the children in the house were immunized again.

SURGERY.

Railton, T C.: Multiple Papillomata of the Larynx in Young Children Treated by Tracheotomy. (*British Medical Journal.* 1898. No. 1938.)

The author reports two cases. The first patient was a girl of three years with well marked symptoms of laryngeal obstruction. Hoarseness had been observed for nearly two years. Tracheotomy was performed and a tube was worn for forty-five months. The second patient was a girl of four years with a history of chronic hoarseness. The tube in this case was worn twenty-five months. It was determined at the beginning of the treatment of these cases to limit it to tracheotomy, the more difficult operations of thyrotomy or endolaryngeal extirpation having proved so very unsatisfactory in children, even at the hands of the most skilful operators. It would appear that the spontaneous atrophy of the papillomata depends upon the removal of all causes of irritation in breathing and more particularly in coughing.

Savage, Thomas R.: Perforating Appendicitis in an Infant. (*Medical Record.* 1898. Vol. liii. No. 17.)

The author was asked to operate for supposed strangulated inguinal hernia on a boy, sixty-one days old. This rupture existed at birth, and the bowel had steadily made its way to the scrotum. About a week before the operation the hernia became irreducible. Persistent daily taxis by the family physician for several days had failed to dislodge the gut, and finally an operation was invoked when the boy was moribund and markedly septic. The colon was found to have descended into the scrotum, where it was firmly adherent at the caput, but not strangulated, and a dirty fluid welled up into the abdomen through the abdominal ring, when pressure was made upon the hernia. The gut was loosened from its scrotal attachments and replaced, when the appendix was found to be inflamed and a round perforation was discovered, about one-eight of an inch in diameter, a short distance from its tip and upon the upper surface. From this opening the fluid escaped. The appendix was then removed and the stump inverted. In spite of all efforts to stimulate him and prevent further infection, the child died next day of septic poisoning.

This case is especially interesting and instructive, as it demonstrates that appendicitis with perforation can result from trauma.

In the specimen, there were two distinct areas of necrosis within the appendix, each surrounded by inflamed tissue—the first, about one-third inch from the tip, resulted in the perforation; the second, which was about one-half inch from the colon, had penetrated through the mucous coat to the muscular. The appendix contained no concretions, fæcal or otherwise.

American Pediatric Society.

ELEVENTH ANNUAL MEETING.

Deer Park, — June, 1899.

OFFICERS—1899.

President, - - - - -	Dr. W. P. Northrup.
First Vice-President, - - -	Dr. Geo. N. Acker.
Second Vice-President, - - -	Dr. Irving M. Snow.
Secretary, - - - - -	Dr. Samuel S. Adams.
Treasurer, - - - - -	Dr. E. M. Buckingham.
Recorder and Editor, - - -	Dr. Floyd M. Crandall.

COUNCIL.

T. M. Rotch, *Chairman.*

J. P. Crozer Griffith,
B. K. Rachford,
A. D. Blackader,
Wm. Osler,
C. P. Putnam,
F. Forchheimer.

Delegate to the Congress of American Physicians and Surgeons,
Dr. A. Jacobi.

Alternate, - - - - Dr. A. Caillé.

It is the request of the President that members attend to two things in connection with the programme of the June meeting: First, present the title of papers before January 1st, so that subjects may be grouped and further papers called out. Second, to induce those interested in the subject of the intended paper to present a discussion, either written or oral.

The titles of papers should be sent as early as possible (certainly before January 1st) to the Secretary, Dr. Samuel S. Adams, 1 Dupont Circle, Washington, D. C.

INDEX TO VOLUME XV.

Abscess of the Brain in Infants. A Report of Five Cases, with a Summary of Twenty-seven Collected Cases.... 81, 161
Abscess, Latero-Pharyngeal.... 903
" Peripharyngeal.... 75
" Retropharyngeal.... 226, 933
" Retro-Œsophageal.... 1
Abt, Isaac A., M.D.... 826
Acker, George N., M.D.... 609, 746
Adams, Samuel S., M.D.... 600
Addison's Disease in Children.... 783
Address by President Philadelphia Pediatric Society.... 204
Adenoid Growths, Diagnosis of.... 378
" " and Enuresis.... 394
" " Indications for Operation.... 154
" " Nasal Obstruction Resembling.... 191
Albuminuria During Pregnancy, with Eclampsia of the Infant.... 673
" as a Lithæmic Manifestation in Early Life.... 605
Alcohol in Childhood.... 573
Alcoholic Intoxication in a Young Child.... 239
Alcoholism in a Child.... 553
" in the Father. Influence of, upon the Child.... 298
Amaurotic Family Idiocy, Three Cases of.... 561
Amaurotic Idiocy with Autopsy.... 866
American Medical Association.... 318
American Pediatric Society's Collective Investigation on Infantile Scurvy in North America.... 481
American Pediatric Society, Programme.... 399
Anæmia in Children, Treatment of.... 875
Anæmias of Infancy, Remarks on the Classification of the.... 815
Anæmia with Greatly Enlarged Spleen.... 789
Anæmic Dyspepsias in Children, Treatment of.... 71
Anæsthesia for Children.... 77
Analgen in Infantile Therapeutics.... 217
Andrews, J. H., M.D.... 680
Angioma, Congenital.... 14, 33
Angioma of Palate.... 44
Anophthalmus, Bilateral.... 905
Antitoxin, Patent on.... 687, 703, 705
" Treatment by.... 72, 194, 449, 666, 790, 872, 886, 946
Anti-Streptococcus Serum, Clinical Experience with.... 520
Appendicitis in Children.... 393, 401, 467, 611, 627, 640
Archives, Name of the.... 40
Arnold, J. P., M.D.... 847
Arthritis in the Course of Epidemic Cerebro-Spinal Meningitis.... 283
" and Osteitis in Early Childhood.... 468, 933
Auto-Intoxication, with Report of Case in Infant.... 321

Bacteriology and Pediatrics.... 451
Ballantyne, J. W., M.D.... 117, 434, 682
Barbour, Philip F., M.D.... 191
Bartley, E. H., M.D.... 272
Bed, Portable.... 134
Bicycle, Use of.... 935

Bile-Duct, Congenital Malformation of.......... 663
Boggess, Walter F., M.D.......... 678
Bone Disease, Treatment of Tuberculous.......... 508

Caillé. Augustus, M.D.......... 574
Cataract, Four Cases of, in Children of One Family.......... 536
Cheatham, William, M.D..........433, 536
Chlorosis, with Reference to Etiology and Dietetic Treatment.......... 554
Chorea, with Acute Delirium, Occurring in Scarlatinal Bright's Disease 29
Churchill, Frank Spooner, M.D..........646, 887
Cigarette Evil.......... 195
Coit, Henry L., M.D.......... 342
Coley, William B., M.D.......... 241
Colotomy in an Infant.......... 374
Constipation in Infancy, the Causes and Treatment of..........393, 418, 621
Converse, T. E., M.D.......... 848
Convulsions in Children, the Etiology and Significance of.......... 551
Corneal Ulcer.......... 848
Crandall, Floyd M., M.D..........35, 895
Cream, Composition of.......... 68
Creosote in Gastro-Enteritis of Nurslings.......... 372
Craig Colony.......... 540
Cretinoid Condition in the Same Family, Three Cases of.......... 78
Cretinism in America.......... 61, 134, 212, 461, 628
  " Treated by Desiccated Thyroids.......... 70
Croup, Pneumococcic.......... 745
  " Treatment of.......... 285
Cyclic Vomiting. A Brief Review of this Affection.......... 839
Cysticercus of the Skin in a Ten-Years-Old Girl.......... 468

Deafness in Childhood.......... 67
Dermoid Cyst Over the Centre of the Large Fontanelle.......... 738
Diabetes in Children.......... 737
Diarrhœa, Subcutaneous in.......... 310
  " Treatment of with Creosote.......... 372
Diet in Febrile Diseases.......... 39
Diphtheria, Case of..........145, 433, 629, 906
  " Clinical Forms of.......... 389
  " in London.......... 761
  " Nervous System in.......... 790
  " Preventive Inoculation..........32, 449, 714
  " Prolonged..........384, 560
  " Treatment of..........218, 666, 790, 872
Diseases of the Nose, Throat, and Ears in Children.......... 234
Dislocation, Congenital of Shoulder.......... 767
Displacement of the Hip, Treatment of Congenital..........151, 697
Displacement of the Membrane and Tube Plugging in Intubation.......... 314
Dowd, Charles N., M.D..........14, 251
Dyspepsias, Treatment of Anæmic.......... 599

Ear, Foreign Bodies in.......... 479
Ectocardia with Displacement.......... 299
Eczema and its Treatment.......... 638
EDITORIALS.
  Rheumatism in Children.......... 37
  Diet in the Febrile Diseases of Children.......... 39
  Milk and the Death Rate.......... 40
  Meningitis.......... 123
  The Bacteriology of Meningitis.......... 125
  Cerebro-Spinal Meningitis.......... 126
  Hospital for Scarlet Fever and Diphtheria.......... 127
  Cigarette Evil and the Schools.......... 195
  Tobacco in the Colleges.......... 197
  The Moral Effects of Cigarette Smoking.......... 199
  Tonsillitis and Rheumatism.......... 278

    The Modern Child 280
    Children's Toys 281
    The Neuroses of Early Life 353
    Developmental Periods of Life 354
    Prevention of the Neuroses Incident to the Period of Development 356
    Immunity from Diphtheria Conferred by Antitoxin 449
    Bacteriology and Pediatrics 451
    Vaccination 452
    Epilepsy 537
    Treatment of Epilepsy 538
    The Craig Colony for Epileptics 540
    National Society for the Study of Epilepsy 541
    Rheumatic Affections of the Heart in Childhood 616
    The Ultimate Results of Pericarditis 617
    Danger Signals in Rheumatism 618
    The Patent on Antitoxin 687
    Laparotomy in Tubercular Peritonitis 689
    Development of the Special Senses 690
    The Sterno-Mastoid Tumors of Children 762
    Yellow Journalism 764
    Anti-Vaccination in England 766
    Congenital Dislocation of the Shoulder Joint 767
    The Cerebral Paralyses of Children 850
    Birth Paralysis 851
    Acute Cerebral Paralysis 852
    The Bone Lesions of Rickets 854
    Specialty of Pediatrics 917
    Growth of Pediatrics 918
    Agency of Archives in Promoting Pediatrics 920
    Dr. Watson 922
Electrolysis, Treatment of Facial Angioma, by 14
Elephantiasis, Congenital 173, 208, 234
Empyema, Submersion in the Treatment of 600
Empyema of the Antrum in an Infant 240
Empyema, Fever Following Operations for 574
Enanthem of German Measles 721
Endocarditis, Antipyretics in Acute 311
Enteroclysis in the Newly-Born, Choice of Fluid for 464
Enuresis 476
Enuresis, Three Cases of Nocturnal in One Family 847
Epilepsy 537
Epilepsy, Gastric Form of 604
Epileptic, the Relation of the State to the 236
Evans, Thomas C., M.D 756
Extirpation of Uterus and Vagina in a Nine-Months Old Baby 226
Eyes of School Children, Examination of the 222

Facial Angiomata Successfully Treated by Electrolysis 14
Farinacea in the Diet of Later Infancy 266, 293
Favus of Eye-lid 132
Febrile Conditions in Children, Treatment of 145
Feeble Minded, Care and Training of 380
Feeding, Infant 768
Femur, Fracture of the Neck of 460
Fever and High Pulse in Children 433
Fischer, Louis, M.D 520
Fontanelle, Dermoid Cyst over 738
Food, Pure Infants' 681
Forchheimer, F 721
Forcible Reduction of Deformity in Pott's Disease 641, 662
Foreign Body in the Nose 795
Freeman, Rowland Godfrey, M.D 509

Funis only Six and One-half Inches Long 115
Gaertner Mother Milk 470, 877
Gall Stones in a New-born Infant 472
Gangrene of the Skin 107
  " of the Scalp, Multiple Cutaneous 469
Gastric Attacks of Toxic Gastritis 867
  " Spasm, Congenital 155, 448
Gastro-Enteritis, Infectious Element in 233
  " Enteritis, Nervous Lesions in 774
General Paralysis in the Young 41
German Measles, Enanthem of 721
Gonorrhœa in Children 226
Gottheil, William S., M.D 427, 515
Griffith, J. P. Crozer, M.D 1, 204, 611, 907
Guerrant, S. S., M.D 905

Habit-Chorea 396
Hæmophilia in an Infant 34
Hæmoptysis, Death from, of a Child Aged Three Years 609
  " in an Infant Two Years Old 746
Hæmorrhagic Cyst of the Spleen 432
Hairpin in the Vagina of a Girl Four Years Old 150
Hand, Alfred, M.D 184
Hamill, Samuel McC., M.D 321
Hare-Lip of the Lower Lip 277
  " Operation for 74
Haynes, Irving S., M.D 401
Heart, Diphtheritic Affections of 250, 543
  " Diseases of 616, 617
Heatstroke in Infants 741
Hemorrhages, Gastro-Intestinal. in the Newly Born 385
Heredity in Phthisis 389
Hernia in Children 241, 251, 314, 377, 645, 949
  " in Infants, Operation for 223, 316, 774
  " Strangulated, in Infants 251, 286
  " into the Umbilical Cord, with Multiple Cysts of the Cord 678
  " Umbilical, Containing the Heart in the New-Born Infant 672
Heteroplastic Bone Grafts 466
Hip, Congenital Dislocation of 375, 940
  " Injury 934, 938
Holt, L. Emmett, M.D 81, 161, 801
Hospitals for Infants 801
Hospital for Scarlet Fever and Diphtheria 127
Huber, Francis, M.D 903
Hydræmia, Hæmatoma, and Sepsis, Case of 72
Hydrocephalic Fluid, Chemical and Bacteriological Study of 720
Hydrocephalus and Congenital Syphilis 306
Hydronephorsis in Early Infancy 861
Hypertrophic Cirrhosis of the Liver, with Icterus 66
Hysteria in Early Life 712, 943

Ichthyosis, Congenital 686
Idiocy, Amaurotic Family 561
  " Case of 67
Iliac Perforation in a Child 755
Illoway, H., M.D 335
Imbecility in Infancy 858
Indicanuria, Modern Aspect of 417
Indigestion, Intestinal 458
Infantilism, Arrest of Growth and 748
Influenza in Children 302, 475
Indiana Pediatric Society 128
Instruction in Diseases of Children 781
Intra-Stomachic Exploration by Gastrostomy 151

Intestinal Obstruction Due to Lumbricoid Worms, Simulating Appendicitis.......... 272
Intubation of the Larynx.......... 194, 285, 874
Intussusception in Children. Unreported Cases.......... 709
  " in an Infant Aged Three Months.......... 795
  " in Infants Treated by Abdominal Section.......... 138, 312
Jacksonian Epilepsy: Adenoma of Liver: Ascites.......... 57
Jacobi, A., M.D.......... 561, 738
  " Receives the Degree of LL.D.......... 615
Jaundice in a Child Aged Six Months.......... 760
Jopson, John H.......... 173
Keratomalacia.......... 756
Kerley, Charles Gilmore, M.D.......... 108, 666, 749
Kidney, Hereditary Granular.......... 894
  " Sarcoma of, in Children.......... 76, 465, 711, 887, 949
Kindergarten Work and the Eyesight of Children.......... 147
Knee, Ankylosis of.......... 904
Kreutzmann, Henry, M.D.......... 673
Krim, J. M., M.D.......... 115
Lacto-Somatose in Rickets.......... 707
Larynx, Congenital Stenosis of.......... 1, 188
Leucæmia in Childhood.......... 330
Lewi, Emily, M.D.......... 179
Lithæmia.......... 605
  " Treatment of.......... 792
Lithiasis in Childhood.......... 786
Liver, Cirrhosis of.......... 66
Lumbar Puncture, Diagnostic and Therapeutic Value of.......... 787
Lumbricoid Worms, Causing Intestinal Obstruction.......... 272
Lympho Sarcoma, Death Due to.......... 76
MacCoy, George T., M.D.......... 188
Malformation of the Hands and Feet.......... 142, 257
Marshall, David T., M D.......... 107
Marvin, Joseph B., M.D.......... 760
Measles Complicated by Pneumonia and Followed by Extreme Anæmia.......... 680
Measles, an Early Symptom of.......... 610
  " Epidemic of, New York Foundling Hospital.......... 370
  " Intrauterine Infection with.......... 514
  " and Mumps, Relapses in.......... 857
Meckel's Diverticulum, Vonvulus of.......... 878
Melanosis Lenticulosis Progressiva.......... 881
Melæna Neonatorum.......... 394
Meningitis, Cerebro-Spinal, Purulent Arthritis in.......... 283
  " in Infants and Children.......... 123, 775
  " Pneumococcus.......... 866
Meningocele, a Case.......... 846
Milk, Estimation of Fat in.......... 179
  " Method for Home Modification.......... 21
  " Modification of.......... 21, 116, 941
  " the Modification of by the Decimal System.......... 342, 454
  " Poisoning.......... 135
  " Supply, Municipal Control of.......... 40, 876
  " Should that Used for Infant Feeding be Heated to Kill Germs? If so, at What Temperature and How Long Continued?.......... 509
  " Sterilization of.......... 20, 135, 509
Miller, D. J. Milton, M.D.......... 266
Modern Child.......... 280
Moriarta, Douglas, M.D.......... 350
Morse, John Lovett, M.D.......... 330, 815
Mortality of the Various Operations for Vesical Calculi in Children.......... 315
Motor Aphasia at the Beginning of Scarlatina.......... 633

Mumps, Relapses in.... 857
Musoitis, Acute Primary.... 307
Muteism Without Deafness in a Child.... 789
Myocardium, Tuberculosis of.... 184
Myxœdema Following and Apparently Due to Vaccination.... 350
Myxœdematous Idiocy.... 67
Nasal Obstruction in the New-Born.... 302
Nephritis Complicating Mumps.... 108
" in Children.... 386, 780
" of Malarial Origin.... 749
Neuro-Fibromatosis.... 75
Neuroses of Early Life.... 353
Nodes of Cranium.... 132
Northrup, William P., M.D.... 120
Occlusion of the Small Intestine.... 857
Ocular Pain, Relief of.... 465
O'Dwyer, Joseph, M.D.... 12
" Joseph. Memoir.... 120
" and Foreign Medical Press.... 838
Orphal (Betanaphthol Bismuth) as an Intestinal Antiseptic.... 71
Ophthalmia in a child, Sympathetic.... 614
" Prevention of.... 948
Osteitis in Childhood.... 468
Ovariotomy in a Child.... 227, 846
Packard, Frederick A., M.D.... 110, 257
Pain in Infancy, Diagnostic Value of.... 383
Palatal Deformity in Idiots, Significance of.... 187
Palsies, Post Scarlatinal.... 292
Papilloma of the Larynx in a Two and One-half Years Old Child.... 311
Paralysis, Infantile.... 305, 655, 850
" of Infants. Birth.... 636, 851, 924, 931
Parotitis Occurring as a Complication of Pneumonia.... 304
Passage of Substances from the Fœtus to Mother.... 825
Pathology of Ante-Natal Life.... 434
Peckham, Frank E., M.D.... 641, 732
Pediatrics, Rise and Progress of.... 907
" Specialty of.... 907, 917
Pelvic Sarcoma in an Infant.... 194
Pemphigus Neonatorum with General Infection by Staphylococci.... 634
Pericarditis.... 617
Perinephritis, a Case of Suppurative.... 640
Peripharyngeal Abscess.... 75
Peritonitis, Generalized Purulent: Laparotomy.... 76
" in Children, Tubercular.... 689, 862
Perityphlitis in Children.... 49
Pertussis, Bacteriology of.... 63
" Belladonna Treatment of.... 148
" Observations in.... 838, 863
Phthisis, Heredity in.... 389
Physiognomy of Disease.... 298
Playgrounds for Children.... 129
Pneumonia, Broncho.... 864
" Encephalopathies of.... 159
" Intermittent.... 861
" Parotitis as Complication.... 304
" Prolonged.... 895
Polyarthritis Commencing in Infancy.... 731
Pott's Disease.... 799
" " The Forcible Reduction of Deformity in.467, 691, 698, 702, 732
Progress in Pediatrics During the Victorian Age.... 229
Pseudo Hypertrophic Muscular Paralysis.... 532
Pulse in Childhood.... 271

Purpura Following Chronic Broncho-Pneumonia 233
Pusey, William, M.D 614
Putnam, Charles P., M.D 663
Pyemia in a Young Infant 796

Quantitative Estimation of Fat in Mother's Milk 179
Rachford, B. K., M.D 605
Randall's Island Hospitals 128
Rectum and Anus, Congenital Occlusion of the 315
Reichard, V. M., M.D 350
Rheumatism in Children 37, 278, 616, 618
  " Treatment of, by Local Applications 464
Rickets, Bone Lesions of 854
  " Deformities of 771
  " Infective Theory of 693
  " Study of a Case of, with Skiagrams 826
  " Treatment of 372
Roberts, W. O., M.D 277
Rodman, W. L., M.D 904
Roetengen Rays in a Child who had Swallowed a Pin 468
Rotch, T. M., M.D 656, 881
Rurräh, John, M.D 190

Sarcoma of the Kidney in Children 76, 465, 711, 887, 949
  " of Liver in Child of Eleven Months 878
Scarlatina, Aphasia in 633
Scarlatinal Rash Limited to the Face 178
Scarlet Fever, Five Hundred Cases of 160
Schachner, August, M.D 33
School Hygiene and Tuberculosis 677
Scleroma Neonatorum 133
Scope and Limitations of Hospitals for Infants 801
Scurvy, Collective Investigation of 481
  " What Conditions Influence the Course of Infantile 550
Sepsis Associated with Subcutaneous and Subperiosteal Hemorrhage 275
Serum, Anti-Streptococcus 624
  " Subcutaneous Injection of, in the Summer Diarrhœas of Infancy 704
  " Therapy, The Development of 715
  " Therapy for the New-born 825
Short reports on Unusual Cases 656
Significance of Fever Following Operations for Pyothorax 574
Simplification of a Simple Method 116
Snow, Irving M., M.D 741
SOCIETY REPORTS:
  American Med. Association, Pediatric Section 318
    " Pediatric Society, Minutes 546
    " Public Health Association 54
  New York Academy of Medicine, General Meeting 359
    " " " Orthopædic Section 142, 697, 771
    " " " Pediatric Section 44, 132, 207, 286, 454, 621
  Philadelphia Pediatric Society, 50, 138, 204, 208, 293, 364, 627, 694, 926
Southworth, Thomas S., M.D 418
Special Senses, Development of 690
Speech Defects 214
Spine, Diseases of 359, 702
Starch Digestion 639
Sterno-Mastoid Tumors 762
Stools and Their Significance 301
Stricture of the Urethra in Male Children 228
Strophanthus, Uses of 373
Subcutaneous Injection of Salt Solution in Diarrhœa 310
  " " of Serum in Diarrhœa 310
Submersion in Treatment of Empyema 600

Summer Diarrhœa of Infants, Treatment of........................... 877
Surgical Practice among Children.................................. 149
  " Treatment of Tuberculous Bone Disease.................... 508
Syphilis, Case of Acquired Infantile 190
  " Hæmorrhagica Neonatorum, with Eruption of the Varicellar Type... 427
  " Inherited..288, 635
Tannin and its Derivatives in Infantile Diarrhœa... 131
Teeth as Indicators of Disturbed Nutrition......................... 391
TERATOLOGY, OCCASIONAL PERISCOPE OF:
  Muzio: Teratoma of the Hard Palate........................... 117
  Pinard and Varnier: Symelian Monstrosity.................... 117
  Auche and Bouyer: Simple Dextrocardia Without General Inversion of Viscera 118
  Bilhant: Case of Congenital Genu Recurvatum................ 119
  Jayle and Jarvis: Ectrodactyly............................... 682
  Apert: Congenital Renal Ectopia; Lung with Four Lobes...... 683
  Laguesse and Bué: Human Derodyme Embryo..................... 683
  Wood: Congenital Diaphragmatic Hernia........................ 684
  Duchamp: Dextrocardia and General Inversion of the Viscera.. 685
  Cousin: Anomalies of the Thoratic Duct...................... 685
Tetanus Followed by Recovery...................................... 110
Tetany in Childhood. 35, 350, 388, 885, 945
Thymus Gland, Pathology of the.................................... 305
Thyroid Gland, Chemistry of the................................... 256
  " Treatment...70, 708
Tics, Treatment of.. 46
Tobacco, Effects on Children...................................... 197
Tonsillitis and Rheumatism.. 278
Toys, Children's 281
Tracheotomy, Indications of 315
Treatment of Some Diseases Two Hundred Years Ago................... 869
Tremor in Children.. 694
Tubercular Meningitis with Recovery............................... 233
Tuberculoses, Fœtal... 906
  " of the Genital Organ in Female Child.................... 393
  " " Lungs and Bronchial Lymph-nodes....................... 66
  " " Myocardium.. 184
Tuttle, George M., M.D.. 532
Typhoid Fever in Children, Treatment of. 308
  " " Widal's Serum Diagnosis of.............................. 300
Ulcer of the Stomach in an Infant Two Months Old.................. 387
Umbilical Fungosities in the Newly-born........................... 878
Urine of Healthy Infants and Children............................. 646
Vaccination...146, 452
  " in England.. 766
Vaccine Rashes.. 784
Vaccinia..335, 945
Vance, A. Morgan, M.D 846
Variola in Children... 232
Vascular Neoplasms of the Cerebro-Spinal Pia Mater................ 66
Watson, Wm. P... 922
Waxham, F. E., M.D... 194
Weight of Infants After Birth, Variations in the.................. 172
Werlhof's Disease, Chronic Form of... 861
West, Charles, M.D., Obituary of.................................. 544
Westcott, Thompson S.................................21, 116
Whitney, H. B., M.D 275, 839
Widal Reaction in the New-Born.................................... 615
Woodward, George, M.D 339
Yale, L. M., M.D.. 941
Yellow Journalism... 764

BIBLIOGRAPHY.

Illoway: Constipation in Adults and Children 42
Owen: The Surgical Diseases of Children 130
Holt: The Care and Feeding of Children 130
Redard: Le Torticollis et son Traitement 201
Holbrook: Stirpiculture 202
Potter: Handbook of Materia Medica, Pharmacy, and Therapeutics 203
Smith: Spinal Caries 284
Transactions of the American Orthopedic Association 284
Mooer: Orthopedic Surgery 357
International Medical Annual and Practitioner's Index 357
Gottheil: Illustrated Skin Diseases, an Atlas and Text-book 453
A. Jacobi: Therapeutics of Infancy and Childhood 620
Shaffer: Brief Essays on Orthopædic Surgery 692
Touatre: Yellow Fever, Clinical Notes 692
Currier: Outlines of Practical Hygiene 693
Thomson: Guide to the Clinical Examination and Treatment of Sick Children 769
Starr: An American Text-book of the Diseases of Children 856
Williams: Medical Diseases of Infancy and Childhood 926
Freyberger: Pocket Formulary for the Treatment of Diseases in Children 926
Scott: The Sexual Instinct: Its Use and Dangers as Affecting Heredity and Morals 926

CONTRIBUTORS.

Abt, Isaac A.
Acker, George N.
Adams, Samuel S.
Andrews, J. H.
Arnold, J. P.
Ashby, Henry.
Ballantyne, J. W.
Barbour, Philip F.
Bartley, E. H.
Boggess, Walter F.
Burr, C. W.
Caillé, Augustus.
Cheatham, Wm.
Churchill, Frank S.
Coit, Henry L.
Coley, Wm. B.
Converse, T. E.
Crandall, Floyd M.
Dowd, Charles N.
Evans, T. C.
Fischer, Louis.
Forchheimer, F.
Freeman, Rowland G.
Gottheil, William S.
Griffith, J. P. Crozer.
Guerrant, S. S.
Hamill. S. McC.
Hand, Alfred.
Haynes, I. S.
Holt. L. Emmett.
Huber, Francis.
Illoway, H.
Jacobi, A.
Jopson, John H.
Kerley, Charles G.
Koplik, Henry.
Kreutzmann, H.
Krim, J M.
Lewi, Emily.
MacCoy, Geo. T.
Marshall, D. T.
Marvin, J. B.
Miller, D. J. M.
Moriarta, Douglas.
Morse, J. Lovett.
Northrup, William P.
O'Dwyer, Joseph.
Osler, William.
Packard, Frederick A.
Peckham, Frank E.
Pusey, Wm.
Putnam, Chas. P.
Rachford, B. K.
Reichard, V. N.
Roberts, W. O.
Rotch, T. M.
Rurräh, John.
Schachner, August.
Snow, Irving M.
Southworth, T. S.
Thomson, John.
Tuttle, Geo. M.
Vance, A. Morgan.
Waxham, F. E.
Westcott, Thompson S.
West, Chas.
Whitney, H. B.
Woodward, Geo.

SERIAL

Archives of pediatrics

RJ
1
A8
v.15

GERSTS